MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

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Dr. I. H. Manning

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

DIVISION OF HEALTH SCIENCES LIBRARY

EIGHTY-FIRST ANNUAL SESSION

HELD AT

PINEHURST, NORTH CAROLINA

April 30th, May 1st and 2nd, 1934

PRESIDENT
I. H. MANNING, M.D., F.A.C.P., CHAPEL HILL

SECRETARY-TREASURER
L. B. McBRAYER, M.D., F.A.C.P., SOUTHERN PINES

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"It is understood that the Society is not to be considered as endorsing all the views and opinions of authors of papers published in the Transactions of the Society."

—*Extract from By-Laws, Chapter 10, Section 8.*

EARLY HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM ORGANIZATION TO 1804

Date	Place	President	Vice-Presidents	Corresponding Secretary	Secretary	Recording Secretary	Treasurer	Censors
Dec. 17, 1799, or April 16, 1800	Raleigh	Richard Fenner	Nathaniel Loomis John Claiborne	Calvin Jones		Wm. B. Hill	Cargill Massenburg	Sterling Wheaton James Webb Jas. John Pasteur Jason Hand
Dec. 1, 1800	Raleigh	Richard Fenner			Sterling Wheaton			
Dec. 1, 1801	Raleigh	John C. Osborne	Thomas Mitchell Richard Fenner	Calvin Jones	Sterling Wheaton		Cargill Massenburg	James Webb John Sibley
1802	Raleigh	John C. Osborne		Calvin Jones				
1803	Raleigh	John C. Osborne		Calvin Jones				
1804	Raleigh	John C. Osborne		Calvin Jones				

*Missing Data Not to be Found in Record

	Date	Place of of Meeting	Number in Attendance	President	Vice-Presidents*	Secretary	Treasurer*	Members on Roll*	Honorary Members*	Honorary Fellows*
	1849	Raleigh	25	F. J. Hill		W. H. McKee		25		
1	1850	Raleigh	21	E. Strudwick	F. J. Haywood, C. E. Johnson, J. E. Williamson, W. G. Thomas.	W. H. McKee	W. G. Hill	38	9	
2	1851	Raleigh	23	E. Strudwick	C. E. Johnson.	W. H. McKee	W. G. Hill	46	0	
3	1852	Wilmington	38	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood	J. J. W. Tucker	72	12	
4	1853	Fayetteville	24	J. E. Williamson	William G. Hill, Johnson B. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris	Daniel Dupree	80	14	
5	1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell	Daniel Dupree	84	17	
6	1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	S. S. Satchwell	J. B. Dunn	96	18	
7	1856	Raleigh	35	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell	J. B. Dunn	101	22	
8	1857	Edenton	25	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas	J. B. Dunn	113	16	
9	1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas	J. B. Dunn	172	18	
10	1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard.	W. G. Thomas	C. W. Graham			
11	1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas	C. W. Graham	233	18	
12	1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom.	W. G. Thomas	C. W. Graham	244	18	
13	1866	Raleigh	20	J. J. Summerell	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	W. G. Thomas	C. W. Graham			
14	1867	Tarboro	41	W. G. Thomas		S. S. Satchwell	C. W. Graham	288	11	
15	1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George A. Foote, Charles J. O'Hagan, J. H. Baker.	Thomas F. Wood	J. W. Jones			
16	1869	Salisbury	36	E. B. Haywood	Thomas E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thomas F. Wood	J. W. Jones			
17	1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Luckey, W. R. Sharpe, R. L. Payne.	Thomas F. Wood	J. W. Jones			
18	1871	Raleigh	35	Hugh Kelley	D. N. Patterson, R. C. Pearson, J. B. Seavy, G. L. Kirby.	Thomas F. Wood	J. W. Jones			
19	1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	James McKee	J. W. Jones			

20	1873	Statesville	43	M. Whitehead	W. T. Ennett, William Little, Charles Duffy, P. T. Jerman.	James McKee	H. T. Bahnson			
21	1874	Charlotte	56	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	James McKee	H. T. Bahnson			
22	1875	Wilson	60	J. W. Jones	Walker Debnam, J. A. Gibson, William Little, D. N. Patterson.	James McKee	H. T. Bahnson	148	5	
23	1876	Fayetteville	33	Peter E. Hines	J. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall.	James McKee	H. T. Bahnson	157	4	
24	1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	James McKee	A. G. Carr	177	4	
25	1878	Goldsboro	79	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Stith.	L. J. Picot	A. G. Carr	194	6	
26	1879	Greensboro	109	Chas. Duffy, Jr.	J. A. Gibson, Willis Alston, James McKee, A. A. Hill.	L. J. Picot	A. G. Carr	198	6	
27	1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot	A. G. Carr	225	6	
28	1881	Asheville	92	R. B. Haywood	J. E. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot	A. G. Carr	254	6	
29	1882	Concord	65	Thos. F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald.	L. J. Picot	A. G. Carr	297	7	
30	1883	Tarboro	112	J. K. Hall	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot	A. G. Carr	310	7	
31	1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot	A. G. Carr	348	7	
32	1885	Durham	173	W. C. McDuffie	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy	R. L. Payne, Jr.	424	6	
33	1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker	R. L. Payne, Jr.	438	7	
34	1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Van Poole, H. B. Ferguson.	J. M. Baker	R. L. Payne, Jr.	452	7	
35	1888	Fayetteville	133	T. D. Haigh	W. T. Ennett, J. A. Dunn, T. E. Anderson.	J. M. Baker	C. M. Van Poole	306	6	
36	1889	Elizabeth City	50	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long.	J. M. Baker	C. M. Van Poole	410	6	
37	1890	Oxford	160	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. D. Booth.	J. M. Hays	C. M. Van Poole	414	6	
38	1891	Asheville	135	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly.	J. M. Hays	C. M. Van Poole	422	6	
39	1892	Wilmington	162	W. T. Cheatham	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	J. M. Hays	C. M. Van Poole	431	6	
40	1893	Raleigh	221	J. W. McNeill	W. C. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill.	R. D. Jewett	M. P. Perry	447	5	3
41	1894	Greensboro	166	W. H. H. Cobb	J. A. Hodges, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett	M. P. Perry	454	5	3
42	1895	Goldsboro		J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer.	R. D. Jewett	M. P. Perry	436	7	3
43	1896	Winston-Salem	158	R. L. Payne	S. D. Booth, J. P. Munroe, J. A. Burroughs, J. E. Grimsley.	R. D. Jewett	M. P. Perry	452	7	3

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1933
*Missing Data Not to be Found in Record

Date		Place of Meeting	Number in Attendance	President	Vice-Presidents*	Secretary	Treasurer*	Members on Roll*	Honorary Members*	Honorary Fellows*
44	1897	Morehead City	103	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett	M. P. Perry	406	6	3
45	1898	Charlotte	*.....	Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett	M. P. Perry	437	6	21
46	1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	Geo. W. Presley	G. T. Sikes	489	6	16
47	1900	Tarboro	115	George W. Long	C. M. Van Poole, James M. Parrott, T. B. Williams, W. D. Hillard	Geo. W. Presley	G. T. Sikes	482	6	21
48	1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A Stanton, E. M. Summerell.	Geo. W. Presley	G. T. Sikes	515	5	18
49	1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott.	Geo. W. Presley	G. T. Sikes	546	5	20
50	1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way	G. T. Sikes	530	6	19
51	1904	Raleigh	326	H. B. Weaver	John Hey Williams, John C. Rodman, S. F. Pfohl.	J. Howell Way	G. T. Sikes	1,033	8	17
52	1905	Greensboro	361	David T. Tayloe	C. A. Julian, John T. Burrus, I. W. Faison.	J. Howell Way	G. T. Sikes	1,175	8	17
53	1906	Charlotte	406	E. C. Register	L. B. McBrayer, W. H. Cobb, Jr., W. O. Spencer.	J. Howell Way	G. T. Sikes	1,234	8	16
54	1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLaughlin, W. F. Hargrove.	David A. Stanton	H. McK. Tucker	888	7	16
55	1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, W. H Dixon.	David A. Stanton	H. McK. Tucker	998	7	28
56	1909	Asheville	337	J. F. Highsmith	C. M. Van Poole, D. A. Garrison, D. O. Dees.	David A. Stanton	H. McK. Tucker	1,067	7	25
57	1910	Wrightsville Beach	276	J. A. Burroughs† E. J. Wood	E. J. Wood, John Q. Myers, L. D. Wharton.	David A. Stanton	H. D. Walker	1,080	8	35
58	1911	Charlotte	412	C. M. Van Poole	J. V. McGougan, W. E. Warren, L. N. Glenn.	David A. Stanton	H. D. Walker	880	8	45
59	1912	Hendersonville	296	A. A. Kent	J. P. Munroe, W. P. Horton, J. G. Murphy.	David A. Stanton	H. D. Walker	950	8	44
60	1913	Morehead City	232	J. P. Munroe	F. R. Harris, E. S. Bullock, L. B. Morse.	John A. Ferrell	H. D. Walker	1,133	8	40
61	1914	Raleigh	431	J. M. Parrott	E. T. Dickinson, J. T. J. Battle, D. E. Sevier.	John A. Ferrell	H. D. Walker	1,228	8	47
62	1915	Greensboro	443	L. B. McBrayer	J. J. Phillips, C. W. Moseley, S. M. Crowell.	John A. Ferrell	H. D. Walker	1,221	9	68

†Died during his term of office; succeeded by E. J. Wood, first vice-president.

63	1916	Durham	406	M. H. Fletcher	J. L. Nicholson, L. N. Glenn, W. H. Hardison.	Benj. K. Hays	W. M. Jones	1,228	10	79
64	1917	Asheville	280	Charles O'H. Laughinghouse	D. J. Hill, J. L. Spruill, J. H. Shuford.	Benj. K. Hays	W. M. Jones	1,271	11	81
65	1918	Pinehurst	291	I. W. Faison	Wm. deB. MacNider, Jos. B. Greene, Ben F. Royal.	Benj. K. Hays	W. M. Jones	1,087	11	81
						Sec-Treas	Acting Sec.-Treas.			
66	1919	Pinehurst	335	Cyrus Thompson	J. W. Halford, T. W. Davis, A. McN. Blair.	Benj. K. Hays	L. B. McBrayer	1,306	11	100
67	1920	Charlotte	479	C. V. Reynolds	H. D. Walker, F. Stanley Whitaker, Thomas I. Fox.	Benj. K. Hays	L. B. McBrayer	1,497	12	100
68	1921	Pinehurst	404	T. E. Anderson	C. S. Lawrence, W. H. Ward, J. M. Manning.	Benj. K. Hays	L. B. McBrayer	1,491	12	93
							Sec.-Treas.			
69	1922	Winston-Salem	507	H. A. Royster	W. T. Parrott, B. C. Nalle, J. R. McCracken.		L. B. McBrayer	1,571	12	100
70	1923	Asheville	356	J. W. Long	F. M. Hanes, T. C. Johnson, B. L. Long.		L. B. McBrayer	1,592	9	101
71	1924	Raleigh	525	J. V. McGougan	J. L. Spruill, ‡Eugene B. Glenn, D. A. Garrison.		L. B. McBrayer	1,604	9	106
72	1925	Pinehurst	550	Albert Anderson	W. L. Dunn, A. E. Bell, K. G. Averitt.		L. B. McBrayer	1,657	10	116
73	1926	Wrightsville Beach	445	Wm. deB. MacNider	J. P. Matheson, W. W. Dawson, H. H. Bass.		L. B. McBrayer	1,663	10	107
74	1927	Durham	653	John Q. Myers	J. W. Carroll, A. Y. Linville, C. H. Cocke.		L. B. McBrayer	1,691	10	121
75	1928	Pinehurst	611	John T. Burrus	G. H. Macon, R. F. Leinbach, W. R. Griffin.		L. B. McBrayer	1,738	11	143
76	1929	Greensboro	671	Thurman D. Kitchin	Dr. W. L. Dunn,* Asheville, Dr. D. T. Tayloe, Jr., Washington, Dr. W. D. James, Hamlet.		L. B. McBrayer	1,666	11	146
77	1930	Pinehurst	701	L. A. Crowell	W. B. Murphy, Wm. E. Warren, N. B. Adams.		L. B. McBrayer	1,711	11	155
					President-Elect	Vice-Presidents				
78	1931	Durham	714	J. G. Murphy	M. L. Stevens	C. A. Julian, Greensboro J. W. Davis, Statesville	L. B. McBrayer	1,600	10	164
79	1932	Winston-Salem	740	M. L. Stevens	Jno. B. Wright	C. W. Banner, Greensboro W. W. Sawyer, Elizabeth City	L. B. McBrayer	1,559	10	166
80	1933	Raleigh	714	Jno. B. Wright	I. H. Manning	J. R. McCracken, Waynesville W. G. Suiter, Weldon	L. B. McBrayer	1,363	10	181
81	1934	Pinehurst	728	I. H. Manning	P. P. McCain	R. L. Felts, Durham H. D. Walker, Elizabeth City	L. B. McBrayer		10	210

*Died during term of office.

ROSTER OF MEMBERS OF THE VARIOUS BOARDS OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

FIRST BOARD

JAMES H. DICKSON, Wilmington 1859-1866
CHARLES E. JOHNSON, Raleigh 1859-1866
CALEB WINSLOW, Hertford 1859-1866
OTIS F. MANSON, Townsville 1859-1866
WILLIAM H. McKEE, Raleigh 1859-1866
CHRISTOPHER HAPPOLDT, Morganton 1859-1866
J. GRAHAM TULL, New Bern 1859-1866
SAMUEL T. IREDELL, Secretary 1859-1866

SECOND BOARD

N. J. PITTMAN, Tarboro 1866-1872
E. BURKE HAYWOOD, Raleigh 1866-1872
R. H. WINBORNE, Edenton 1866-1872
S. S. SATCHWELL, Rocky Point 1866-1872
J. J. SUMMERELL, Salisbury 1866-1872
R. B. HAYWOOD, Raleigh 1866-1872
M. WHITEHEAD, Salisbury 1866-1872
J. F. SHAFFNER, Salem 1866-1872
WILLIAM LITTLE, Secretary 1866-1867
THOMAS F. WOOD, Secretary, Wilmington 1867-1872

THIRD BOARD

CHARLES J. O'HAGAN, Greenville 1872-1878
W. A. B. NORCOM, Edenton 1872-1878
C. TATE MURPHY, Clinton 1872-1878
GEORGE A. FOOTE, Warrenton 1872-1878
J. W. JONES, Tarboro 1872-1878
R. L. PAYNE, Lexington 1872-1878
CHARLES DUFFY, JR., Secretary, New Bern 1872-1878

FOURTH BOARD

PETER E. HINES, Raleigh 1878-1884
THOMAS D. HAIGH, Fayetteville 1878-1884
GEORGE L. KIRBY, Goldsboro 1878-1884
THOMAS F. WOOD, Wilmington 1878-1884
JOSEPH GRAHAM, Charlotte 1878-1884
[1]ROBERT I. HICKS, Williamston 1878-1880
[2]RICHARD H. LEWIS, Raleigh 1880-1884
HENRY T. BAHNSON, Secretary, Salem 1878-1884

FIFTH BOARD

WILLIAM R. WOOD, Scotland Neck 1884-1890
AUGUSTUS W. KNOX, Raleigh 1884-1890
FRANCIS DUFFY, New Bern 1884-1890
PATRICK L. MURPHY, Morganton 1884-1890
WILLIS ALSTON, Littleton 1884-1890
J. A. REAGAN, Weaverville 1884-1890
W. J. H. BELLAMY, Secretary, Wilmington 1884-1890

SIXTH AND SEVENTH BOARDS

R. L. PAYNE, JR., Lexington 1890-1892
GEORGE W. PUREFOY, Asheville 1890-1892
GEORGE G. THOMAS, Wilmington 1890-1894
ROBERT S. YOUNG, Concord 1890-1894
WILLIAM H. WHITEHEAD, Rocky Mount 1890-1896
GEORGE W. LONG, Graham 1890-1896
L. J. PICOT, Secretary, Littleton 1890-1896
JULIAN M. BAKER, Tarboro 1892-1898
H. B. WEAVER, Secretary, Asheville 1892-1898
[3]J. M. HAYS, Greensboro 1894-1897
[4]KEMP P. BATTLE, JR., Raleigh 1897-1900

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[1]Resigned before expiration of term.
[2]Elected for unexpired term of Dr. Hicks.
[3]Died before the expiration of his term.
[4]Elected to serve unexpired term of Dr. Hays.

[1]THOMAS S. BURBANK, Wilmington....1894-1898
[2]WILLIAM H. H. COBB, Goldsboro....1898-1900
[1]RICHARD H. WHITEHEAD, Chapel Hill....1896-1898
[3]J. HOWELL WAY, Secretary, Waynesville....1898-1902
DAVID T. TAYLOE, Washington....1896-1902
THOMAS E. ANDERSON, Secretary, Statesville....1896-1902
[4]ALBERT ANDERSON, Wilson....1898-1902
[4]EDWARD C. REGISTER, Charlotte....1898-1902
[4]THOMAS S. McMULLAN, Hertford....1900-1902
[4]JOHN C. WALTON....1900-1902

EIGHTH BOARD

A. A. KENT, Lenoir....1902-1908
CHARLES O'H. LAUGHINGHOUSE, Greenville....1902-1908
M. H. FLETCHER, Asheville....1902-1908
JAMES M. PARROTT, Kinston....1902-1908
J. T. J. BATTLE, Greensboro....1902-1908
FRANK H. RUSSELL, Wilmington....1902-1908
[1]GEORGE W. PRESSLY, Secretary, Charlotte....1902-1906
[5]G. T. SIKES, Secretary, Grissom....1906-1908

NINTH BOARD

LEWIS B. McBRAYER, Asheville....1908-1914
JOHN C. RODMAN, Washington....1908-1914
WILLIAM W. McKENZIE, Salisbury....1908-1914
HENRY H. DODSON, Greensboro....1908-1914
JOHN BYNUM, Winston-Salem....1908-1914
J. L. NICHOLSON, Richlands....1908-1914
BENJ. K. HAYS, Secretary, Oxford....1908-1914

TENTH BOARD

ISAAC M. TAYLOR, Morganton....1914-1920
JOHN Q. MYERS, Charlotte....1914-1920
JACOB F. HIGHSMITH, Fayetteville....1914-1920
MARTIN L. STEVENS, Asheville....1914-1920
[6]CHARLES T. HARPER, Wilmington....1914-1915
[7]EDWIN G. MOORE, Elm City....1915-1920
[8]JOHN G. BLOUNT, Washington....1914-1920
HUBERT A. ROYSTER, Secretary, Raleigh....1914-1920

ELEVENTH BOARD

LESTER A. CROWELL, Lincolnton....1920-1926
WILLIAM P. HOLT, Duke....1920-1926
J. GERALD MURPHY, Wilmington....1920-1926
LUCIUS N. GLENN, Gastonia....1920-1926
CLARENCE A. SHORE, Raleigh....1920-1926
WILLIAM M. JONES, Greensboro....1920-1926
KEMP P. B. BONNER, Secretary, Morehead City....1920-1926

TWELFTH BOARD

PAUL H. RINGER, Asheville....1926-1932
W. HOUSTON MOORE, Wilmington....1926-1932
T. W. M. LONG, Roanoke Rapids....1926-1932
[6]W. W. DAWSON, Grifton....1926-1932
J. K. PEPPER, Winston-Salem....1926-1932
FOY ROBERSON, Durham....1926-1932
JOHN W. McCONNELL, Secretary, Davidson....1926-1932
[9]DAVID T. TAYLOE, JR., Washington....1930-1932

THIRTEENTH BOARD

BEN F. ROYAL, Morehead City....1932-1938
BENJ. J. LAWRENCE, Secretary, Raleigh....1932-1938
F. WEBB GRIFFITH, Asheville....1932-1938
HAMILTON W. McKAY, Charlotte....1932-1938
J. W. VERNON, Morganton....1932-1938
W. H. SMITH, Goldsboro....1932-1938
K. G. AVERITT, Cedar Creek....1932-1938

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[1]Resigned before the expiration of his term.
[2]Elected to serve the unexpired term of Dr. Burbank.
[3]Elected to serve the unexpired term of Dr. Whitehead.
[4]Elected for short term expiring in 1902.
[5]Elected to serve the unexpired term of Dr. Pressly.
[6]Died before the expiration of his term.
[7]Elected to serve the unexpired term of Dr. Harper.
[8]Died a few months before the expiration of his term; such a short time that the vacancy was not filled.
[9]Elected to serve unexpired term of Dr. W. W. Dawson.

NOTE: In 1890 the Medical Society of the State of North Carolina adopted the plan of electing members of the Board in such a manner that the terms would expire at different intervals of two years. This practice was followed for twelve years, or until 1902, when the plan was abandoned; an equivalent of two terms of six years each. It is evident that the Society arranged to abandon the policy as early as 1898, as two members were elected for short terms, and two years later two other members were elected for still shorter terms. It is therefore impossible to separate the sixth and seventh Boards, since the membership was overlapping.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH
FROM ORGANIZATION IN 1877 TO 1934

Name	Address	Appointed by	Term
S. S. Satchwell, M.D., President	Rocky Point	State Society	1877 to 1878
Thomas, F. Wood, M.D., Secretary	Wilmington	State Society	1877 to 1878
Joseph Graham, M.D.	Charlotte	State Society	1877 to 1878
Charles Duffy, Jr., M.D.	New Bern	State Society	1877 to 1878
Peter E. Hines, M.D.	Raleigh	State Society	1877 to 1878
George A. Foote, M.D.	Warrenton	State Society	1877 to 1878
S. S. Satchwell, M.D., President	Rocky Point	State Society	1878 to 1884
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1878 to 1884
Charles J. O'Hagan, M.D., President	Greenville	State Society	1878 to 1882
George A. Foote, M.D.	Warrenton	State Society	1878 to 1882
Marcellus Whitehead, M.D.	Salisbury	State Society	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1878 to 1880
H. G. Woodfin, M.D.	Franklin	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist	Chapel Hill	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer	Charlotte	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1881 to 1887
M. Whitehead, M.D., President	Salisbury	State Society	1881 to 1884
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer	Charlotte	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M.D., President	Wake Forest	State Society	1883 to 1889
John McDonald, M.D.	Washington	State Society	1883 to 1889
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1883 to 1885
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer	Raleigh	Gov. T. J. Jarvis	1883 to 1886
R. H. Lewis, M.D.	Raleigh	State Board of Health	1884 to 1886
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1885 to 1887
William D. Hillard, M.D.	Asheville	State Society	1885 to 1891
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M.D., Secretary	Raleigh	State Society	1887 to 1888
H. T. Bahnson, M.D., President	Winston	State Society	1887 to 1888
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1887 to 1889
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1887 to 1889
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1888 to 1891
J. L. Ludlow, Civil Engineer	Winston	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M.D.	Henderson	Gov. D. G. Fowle	1888 to 1891
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. D. G. Fowle	1889 to 1893
J. L. Ludlow, Civil Engineer	Winston	Gov. D. G. Fowle	1889 to 1892
J. A. Hodges, M.D.	Fayetteville	State Society	1889 to 1893
J. M. Baker, M.D.	Tarboro	State Society	1891 to 1893
J. H. Tucker, M.D.	Henderson	Gov. T. M. Holt	1891 to 1893
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. T. M. Holt	1891 to 1892
J. L. Ludlow, Civil Engineer	Winston	Gov. T. M. Holt	1891 to 1897
Thomas, F. Wood, M.D., Secretary*	Wilmington	State Society	1892 to 1897
George G. Thomas, M.D., President	Wilmington	State Board of Health	1891 to 1895
S. Westray Battle, M.D.	Asheville	State Society	1892 to 1895
W. H. Harrell, M.D.	Williamston	State Society	1893 to 1895
John Whitehead, M.D.	Salisbury	State Board of Health	1893 to 1895
W. H. G. Lucas	White Hall	Gov. Elias Carr	1893 to 1895
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1893 to 1895
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1893 to 1895
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1894 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
W. J. Lumsden, M.D.	Elizabeth City	Gov. Elias Carr	1895 to 1897
John Whitehead, M.D.	Salisbury	State Society	1895 to 1897
W. H. Harrell, M.D.	Williamston	State Society	1895 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1895 to 1897
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1897 to 1899
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1897 to 1899
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M.D.	Goldsboro	Gov. D. L. Russell	1897 to 1899
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1897 to 1899
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M.D.	Wilson	Gov. D. L. Russell	1899 to 1901
George G. Thomas, M.D., President	Wilmington	State Society	1899 to 1901
S. Westray Battle, M.D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M.D.	Jackson	State Society	1899 to 1901
H. H. Dodson, M.D.	Milton	State Society	1899 to 1901

*Died in 1892, leaving a five-year unexpired term, which was filled by the Board.

MEMBERS STATE BOARD OF HEALTH—Continued

Name	Address	Appointed by	Term
R. H. Lewis, M.D., Secretary	Raleigh	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M.D.	Lenoir	Gov. C. B. Aycock	1901 to 1907
George G. Thomas, M.D., President	Wilmington	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M.D.	New Bern	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1901 to 1905
S. Westray Battle, M.D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M.D.	Jackson	State Society	1901 to 1907
W. H. Whitehead, M.D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M.D.	Richlands	State Society	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1903 to 1909
J. Howell Way, M.D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.	Winston	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M.D., President	Wilmington	State Society	1905 to 1911
Thomas E. Anderson, M.D.	Statesville	State Society	1905 to 1911
R. H. Lewis, M.D.	Raleigh	Gov. R. B. Glenn	1907 to 1913
E. C. Register, M. D.	Charlotte	Gov. R. B. Glenn	1907 to 1913
David T. Tayloe, M.D.	Washington	State Society	1907 to 1909
James A. Burroughs, M.D.[1]	Asheville	State Society	1907 to 1913
J. E. Ashcraft, M.D.	Monroe	State Board of Health	1909 to 1913
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. W. W. Kitchin	1909 to 1913
J. Howell Way, M.D., President	Waynesville	Gov. W. W. Kitchin	1911 to 1917
W. O. Spencer, M.D.	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
Thomas E. Anderson, M.D.	Statesville	State Society	1911 to 1917
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1911 to 1917
R. H. Lewis, M.D.	Raleigh	Gov. Locke Craig	1913 to 1919
Edw. J. Wood, M.D.	Wilmington	Gov. Locke Craig	1913 to 1919
A. A. Kent, M.D.[2]	Lenoir	State Society	1913 to 1915
Cyrus Thompson, M.D.	Jacksonville	State Society	1913 to 1919
Fletcher R. Harris, M.D.	Henderson	State Board of Health	1913 to 1919
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. Locke Craig	1915 to 1921
J. Howell Way, M.D., President	Waynesville	Gov. T. W. Bickett	1917 to 1923
E. C. Register, M.D.[1]	Charlotte	Gov. T. W. Bickett	1917 to 1923
Thomas E. Anderson, M.D.	Statesville	State Society	1917 to 1923
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1917 to 1923
Fletcher R. Harris, M.D.[3]	Henderson	State Society	1919 to 1923
A. J. Crowell, M.D.	Charlotte	Gov. T. W. Bickett	1919 to 1923
Chas. E. Waddell, C.E.[4]	Asheville	Gov. C. Morrison	1921 to 1923
Cyrus Thompson, M.D.	Jacksonville	State Society	1919 to 1925
R. H. Lewis, M.D.	Raleigh	Gov. T. W. Bickett	1919 to 1925
E. J. Tucker, D.D.S.	Roxboro	Gov. T. W. Bickett	1923 to 1925
J. Howell Way, M.D., President	Waynesville	Gov. C. Morrison	1923 to 1929
A. J. Crowell, M.D.	Charlotte	Gov. C. Morrison	1923 to 1929
James P. Stowe, Ph.G.	Charlotte	Gov. C. Morrison	1923 to 1927
D. A. Stanton, M.D.	High Point	State Board of Health	1923 to 1925
Thomas E. Anderson, M.D.	Statesville	State Society	1923 to 1929
Charles O'H. Laughinghouse, M.D.[5]	Greenville	State Society	1923 to 1926
Cyrus Thompson, M.D.[1]	Jacksonville	State Society	1925 to 1931
D. A. Stanton, M.D.	High Point	State Society	1925 to 1931
R. H. Lewis, M.D.[1]	Raleigh	Gov. A. W. McLean	1925 to 1931
Jno. B. Wright, M.D.[6]	Raleigh	Gov. A. W. McLean	1926 to 1931
E. J. Tucker, D.D.S.[6]	Roxboro	Gov. A. W. McLean	1925 to 1931
W. S. Rankin, M.D.[4]	Charlotte	State Board of Health	1926 to 1927
L. E. McDaniel, M.D.	Jackson	State Board of Health	1927 to 1929
Chas. C. Orr, M.D.	Asheville	Gov. A. W. McLean	1927 to 1929
Thomas E. Anderson, M.D.[6]	Statesville	State Society	1929 to 1935
L. E. McDaniel, M.D.[6]	Jackson	State Society	1929 to 1935
James P. Stowe, Ph.G.[6]	Charlotte	Gov. A. W. McLean	1927 to 1933
A. J. Crowell, M.D.[6]	Charlotte	Gov. O. Max Gardner	1929 to 1935
J. M. Parrott, M.D.[6]	Kinston	State Board of Health	1930 to 1931
Chas. C. Orr, M.D.[6]	Asheville	Gov. O. Max Gardner	1929 to 1935
J. M. Parrott, M.D.[5]	Kinston	State Society	1931 to 1935
C. V. Reynolds, M. D.	Asheville	State Society	1931 to 1935
L. B. Evans, M. D.	Windsor	State Society	1931 to 1933
S. D. Craig, M. D.	Winston-Salem	State Society	1931 to 1933
John T. Burrus, M. D.	High Point	Gov. O. Max Gardner	1931 to 1933
J. N. Johnson, D.D.S.	Goldsboro	Gov. O. Max Gardner	1931 to 1933
J. A. Goode, Ph.G.	Asheville	Gov. O. Max Gardner	1931 to 1933
H. L. Large, M.D.	Rocky Mount	Gov. O. Max Gardner	1931 to 1935
H. G. Baity, C.E.	Chapel Hill	Gov. O. Max Gardner	1931 to 1935
Grady G. Dixon, M.D.[7]	Ayden	Ex. Com. State Society	1931 to 1932
Grady G. Dixon, M.D.[7]	Ayden	State Society	1932 to 1935
S. D. Craig	Winston-Salem	State Society	1933 to 1937
W. T. Rainey, M.D.	Fayetteville	State Society	1933 to 1937

[1]Died leaving unexpired term.
[2]Resigned to become member of General Assembly.
[3]Resigned to become Health Officer Vance County.
[4]Resigned.
[5]Resigned to become Secretary of State Board of Health.
[6]Term terminated account reorganization State Board of Health by General Assembly.
[7]To fill vacancy caused by resignation of Dr. J. M. Parrott.

STATUS OF SOCIETY MEMBERSHIP BY COUNTIES FOR YEARS 1920-1934

County	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Alamance-Caswell *a*	27	27	31	27	27	25	27	30	30	32	33	33	32	29	32
Alexander *b*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Alleghany *n*	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Anson	2	1	2	12	12	11	10	6	8	8	6	6	4	4	9
Ashe *p*	7	5	9	8	6	10	6	8	6	5	5	5	4	.....	.....
Avery *r*	4	5	4	5	5	5	5	6	6	6	5	5	5	.....	5
Beaufort	14	12	14	17	14	17	17	17	17	16	18	15	15	12	13
Bertie	10	9	12	10	9	9	8	8	8	6	7	9	7	8	9
Bladen	8	7	7	4	3	8	7	8	8	8	8	8	8	5	6
Brunswick	2	1	1	1	1	1	1	1	4	6	2	2	2	2	2
Buncombe	83	92	96	99	105	97	102	118	120	118	113	112	105	83	107
Burke	11	12	11	15	13	14	11	11	12	12	17	17	17	17	12
Cabarrus	20	19	21	23	19	21	21	22	27	27	23	20	20	10	14
Caldwell	10	10	12	12	10	11	14	15	15	13	15	14	12	9	12
Camden *c*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carteret	9	9	8	12	10	10	12	12	11	11	12	12	12	12	12
Caswell *d*	2	2	1	1	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Catawba	18	16	22	20	19	16	16	21	16	17	13	13	16	8	16
Chatham	10	11	6	7	9	9	7	9	8	9	9	4	3	2	3
Cherokee	10	10	10	10	9	10	9	8	10	10	10	9	8	5	8
Chowan-Perquimans	8	7	6	7	8	5	9	10	9	7	8	6	7	6	7
Clay *e*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	19	16	19	18	18	17	19	20	20	22	23	19	22	21	20
Columbus	10	8	5	14	11	12	14	15	14	14	15	10	8	8	10
Craven	6	6	8	10	12	14	16	17	15	14	13	13	14	9	5
Cumberland	20	24	23	22	32	31	28	29	28	22	26	23	21	27	27
Currituck *s*	5	5	5	4	4	4	4	3	2	1	1	1	1	.....	.....
Dare *f*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Davidson	18	16	18	18	22	20	19	19	18	17	16	17	17	17	20
Davie	4	4	4	6	4	5	4	5	5	5	5	5	6	4	2
Duplin	10	12	11	12	12	13	13	13	9	11	9	11	7	2	2
Durham-Orange	45	40	43	43	47	53	60	64	63	65	67	76	77	76	76
Edgecombe-Nash	15	15	15	12	10	11	12	12	12	7	10	43	39	25	46
Forsyth	57	62	60	59	62	63	64	66	74	59	70	66	69	70	73
Franklin	12	10	12	12	12	12	12	10	12	11	10	9	7	7	9
Gaston	35	38	39	40	40	39	40	38	39	39	36	33	37	12	28
Gates	.....	.....	.....	1	1	1	.....	.....	1	2	2	2	2	2	2
Graham	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Granville	15	14	14	12	13	13	12	12	14	13	13	13	12	10	10
Greene	6	7	7	5	6	5	5	5	5	5	5	5	5	5	6
Guilford	77	78	80	87	93	107	112	119	123	130	124	124	118	91	102
Halifax	28	24	24	18	21	20	16	14	17	17	16	15	14	13	15
Harnett	16	15	16	15	15	13	12	16	16	15	14	13	15	16	14
Haywood	11	10	12	13	13	14	14	13	8	14	14	12	13	15	20
Henderson *j*	.....	.....	.....	.....	.....	.....	17	19	16	16	19	14	12	9	17
Henderson-Polk *g*	15	13	13	13	13	14	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hertford	10	10	10	10	10	8	8	7	7	6	5	5	5	6	7
Hoke	10	8	6	8	9	11	10	11	12	14	14	14	12	11	13
Hyde	1	1	2	1	2	1	1	1	1	1	1	1	1	.....	1
Iredell-Alexander	21	18	20	19	20	26	29	34	37	39	38	38	39	29	38
Jackson	5	6	6	6	8	7	7	6	5	6	6	3	7	2	4
Johnston	22	23	26	25	25	24	28	24	23	18	23	25	20	19	19
Jones	.....	.....	1	2	1	4	4	3	3	3	3	3	3	3	3
Lee	8	8	10	10	11	13	13	13	14	16	13	11	13	10	10
Lenoir	22	19	20	17	20	18	20	22	23	20	22	17	19	20	22
Lincoln	16	14	13	14	16	11	11	12	13	14	13	10	12	12	13
Macon-Clay	6	7	7	7	7	6	8	8	9	6	8	4	3	2	5
Madison	11	12	8	11	11	11	11	5	12	7	5	3	4	5	4
Martin *t*	16	14	12	13	10	10	10	10	10	10	8	7	4	.....	.....
Martin-Washington-Tyrrell	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	10
McDowell	6	5	5	6	7	8	7	8	7	9	12	10	10	11	10
Mecklenburg	104	107	110	115	109	121	117	104	119	125	128	124	117	104	108
Mitchell	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Mitchell-Avery	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	.....
Mitchell-Watauga	5	8	10	10	7	7	8	7	9	8	6	5	5	.....	.....
Montgomery	8	11	10	9	9	8	9	9	10	11	9	10	9	7	9
Moore	16	17	21	20	20	19	21	17	20	22	17	21	21	18	22
Nash *m*	25	26	30	30	33	34	32	31	30	30	33	.....	.....	.....	.....
New Hanover	40	46	51	46	44	42	40	41	38	32	38	37	35	25	35
Northampton	10	11	11	10	10	10	11	9	9	6	3	4	5	4	8
Onslow	8	7	7	5	6	6	5	5	6	5	5	5	6	6	6
Orange *h*	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pamlico	5	6	5	5	4	5	5	5	5	5	4	4	4	4	4
Pasquotank-Camden-Currituck-Dare	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	14

STATUS OF MEMBERSHIP BY COUNTIES—Continued

County	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Pasquotank-Camden-Dare	16	11	19	18	17	18	19	18	16	14	17	14	11	.....	.....
Pender	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1
Perquimans *i*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Person	10	11	10	10	10	8	7	7	7	6	6	6	6	7	7
Pitt	24	19	24	23	24	26	24	26	31	24	27	27	20	14	22
Polk *j*	.....	.....	.....	.....	.....	.....	5	6	6	6	6	5	7	7	6
Randolph	13	15	14	14	13	14	12	10	11	10	8	7	14	10	11
Richmond	12	14	13	14	16	19	18	18	18	14	17	17	15	16	15
Robeson	35	34	33	27	29	30	31	28	28	21	24	21	22	23	25
Rockingham	20	23	25	21	23	26	23	24	21	20	24	24	21	22	23
Rowan	28	31	32	32	36	40	40	40	42	35	35	39	33	24	34
Rutherford	20	12	18	22	21	21	22	24	22	22	22	21	21	19	20
Sampson	13	14	12	13	17	15	14	13	13	10	13	13	14	14	14
Scotland	10	12	12	12	12	12	12	12	12	12	10	11	11	11	11
Stanly	15	12	11	12	15	14	13	15	14	14	16	15	13	12	16
Stokes	10	6	12	9	10	10	5	7	8	6	2	6	6	1	1
Surry	28	25	25	24	26	22	17	20	22	20	20	13	17	12	.....
Surry-Yadkin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25
Swain	3	1	4	3	1	1	1	.....	.....	.....	.....	.....	.....	.....	3
Transylvania	1	1	5	6	4	8	4	5	7	4	2	2	1	3	2
Tyrrell *k*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union	16	17	17	18	18	19	19	16	16	14	13	10	9	10	10
Vance	11	11	10	10	12	11	12	11	11	11	12	8	7	8	9
Wake	68	73	76	85	73	78	79	78	80	84	94	87	86	87	89
Warren	8	8	7	7	6	6	6	6	6	6	6	6	6	5	5
Washington-Tyrrell *u*	.....	10	9	9	9	8	8	6	6	5	3	3	3	.....	.....
Watauga *l q*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Watauga-Ashe	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	5
Wayne	28	24	33	32	29	32	34	32	38	38	38	30	32	22	27
Wilkes *o*	10	11	10	10	10	10	9	14	11	10	10	11	10	.....	.....
Wilkes-Alleghany	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	13
Wilson	29	31	28	31	31	32	34	34	35	31	28	28	22	21	25
Yadkin *v*	2	5	4	3	2	3	2	2	3	5	10	.....	4	1	.....
Yancey	3	1	1	1	1	1	2	7	5	3	4	1	1	.....	5
Totals	1497	1491	1571	1592	1606	1657	1666	1691	1738	1669	1694	1600	1559	1363	1563

a The figures for 1926 are for Alamance-Caswell; for the other years, for Alamance only; *b* See Iredell-Alexander; *c* See Pasquotank-Camden-Dare; *d* For 1926, see Alamance-Caswell; *e* See Macon-Clay; *f* See Pasquotank-Camden Dare; *g* See Henderson or Polk for years after 1925; *h* See Durham-Orange; *i* See Chowan-Perquimans; *j* See Henderson-Polk for 1912-1925; *k* See Washington-Tyrrell; *l* See Mitchell-Watauga; *m* See Edgecombe-Nash for 1931; for the other years Edgecombe only; *n* See Wilkes-Alleghany; *o* See Wilkes-Alleghany; *p* See Watauga-Ashe; *q* See Watauga-Ashe; *r* See Mitchell-Avery; *s* See Pasquotank-Camden-Currituck-Dare; *t* See Martin-Washington-Tyrrell; *u* See Martin-Washington-Tyrrell; *v* See Surry-Yadkin.

HONORARY FELLOWS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Abel, J. F. ..... Waynesville
Abernathy, H. N. ..... Charlotte
*Achorn, John W. ..... Pinebluff
*Adams, C. A. ..... Durham
*Adams, Charles E. ..... Gastonia
*Adams, M. R. ..... Statesville
*Alexander, Annie L. ..... Charlotte
Alexander, Jas. R. ..... Charlotte
Allen, Jos. A. ..... New London
*Allen, Rufus L. ..... Waynesville
*Alston, B. P. ..... Epsom
*Ambler, C. P. ..... Asheville
Anders, McT. G. ..... Gastonia
*Anderson, Albert ..... Raleigh
Anderson, Chas. A. ..... Burlington
Anderson, Thos. Eli ..... Statesville
*Archery, L. M. ..... Concord
*Asbury, F. E. ..... Asheboro
Ashecraft, J. E. ..... Fayetteville
Ashworth, Benj. L. ..... Marion
Ashworth, W. C. ..... Greensboro
*Attmore, Geo. S. ..... Stonewall
Averitt, K. G. ..... Cedar Creek
*Bahnson, H. T. ..... Winston-Salem
Baker, J. M. ..... Tarboro
Banner, Chas. W. ..... Greensboro
*Barrier, P. A. ..... Mt. Pleasant
Bass, H. H. ..... Durham
Battle, J. T. J. ..... Greensboro
*Battle, Kemp P. ..... Raleigh
*Battle, S. W. ..... Asheville
Beall, Wm. P. ..... Black Mountain
Bell, A. E. ..... Mooresville
Bellamy, Robert H. ..... Wilmington
*Bellamy, W. J. H. ..... Wilmington
*Boddie, N. P. ..... Durham
*Bolton, Mahlon ..... Rich Square
*Booth, Samuel D. ..... Oxford
Brown, G. A. ..... Mt. Ulla
Brown, J. S., Sr. ..... Hendersonville
*Brownson, W. C. ..... Asheville
Buffaloe, J. S. ..... Garner
*Bullock, D. W. ..... Wilmington
Bullock, Thomas C. ..... Autryville
Burrus, John T. ..... High Point
Burt, B. W. ..... Holly Springs
Burt, S. P. ..... Louisburg
Byerly, Andrew B. ..... Cooleemee
*Bynum, John ..... Winston-Salem
*Caldwell, D. G. ..... Concord
Carroll, E. D. Dixon ..... Raleigh
Caviness, Zebulon M. ..... Raleigh
*Cheatham, Archibald ..... Durham
Cheesborough, Thos. P. ..... Asheville
*Clark, G. L. ..... Clarkton
Cobb, Wm. H., Jr. ..... Goldsboro
Cotton, Clyde E. ..... Asheville
*Council, J. B. ..... Salisbury
*Covington, J. M. ..... Wadesboro
Cox, E. L. ..... Jacksonville
*Croom, J. D. ..... Maxton
Crowell, A. J. ..... Charlotte
Crowell, L. A. ..... Lincolnton
Daligny, Charles ..... Troy
*Dalton, David N. ..... Winston-Salem
Davis, Thomas W. ..... Winston-Salem
Davidson, John E. S. ..... Charlotte
DeArmon, J. McC. ..... Charlotte
*Denny, Wm. W. ..... Pink Hill
Dickinson, E. T. ..... Wilson
*Dillard, Richard, Jr. ..... Edenton
Dixon, Guy E. ..... Hendersonville
Dixon, Wm. H. ..... Ayden
*Dodson, H. H. ..... Greensboro
*Duffy, Charles ..... New Bern
*Duffy, Francis ..... New Bern
Eddleman, H. M. ..... Gastonia
*Edgerton, Jas. L. ..... Hendersonville
*Edwards, G. C. ..... Hookerton
Edwards, J. D. ..... Siler City
Ellis, R. C. ..... Shelby
*Faison, I. W. ..... Charlotte
*Faison, Wm. W. ..... Goldsboro
Fearing, Isaiah ..... Elizabeth City
*Fletcher, M. H. ..... Asheville
Flippin, J. M. ..... Pilot Mountain
Flippin, Samuel T. ..... Siloam
Fortune, Alex. F. ..... Greensboro
*Fox, M. F. ..... Guilford College
*Freeman, Richard A. ..... Burlington
Galloway, W. C. ..... Wilmington
Garrison, David A. ..... Gastonia

*Deceased.

Gibbon, Robert L.....Charlotte
*Gilmer, Chas. S.....Greensboro, R. 6
Gilreath, Frank H.....N. Wilkesboro
Goley, Wm. R.....Graham
Goodman, A. B.....Lenoir
*Goodman, E. G.....Lanvale
Goodwin, A. W.....Raleigh
Gouger, Geo. J.....Concord
Gove, Anna M.....Greensboro
Grady, James C.....Kenly
Grady, Wm. Earle.....Tryon
*Graham, Joseph .....Charlotte
*Graham, Wm. A.....Charlotte
*Griffin, J. A.....Clayton
Griggs, W. T.....Poplar Branch
*Hall, Wright .....Wilmington
*Halsey, B. F.....Roper
Hardy, Ira M.....Kinston
*Hargrove, R. H.....Robersonville
Harrill, L. B.....Caroleen
*Harris, F. R.....Henderson
*Harriss, I. A.....Weaverville
Harrison, Edmund .....Greensboro
Harris, A. H.....Wilmington
Hathcock, Thos. A.....Norwood
Hays, Benj. K.....Oxford
*Haywood, F. J.....Raleigh
*Haywood, Hubert, Sr.....Raleigh
*Herring, B. S.....Wilson
Hicks, Calvin S.....Durham
Hicks, I. F.....Dunn
*Hicks, Romeo.....Henrietta
*Hicks, Wm. N.....Durham
Highsmith, Chas. .....Dunn
Highsmith, J. F.....Fayetteville
Highsmith, Seavy .....Fayetteville
*Hill, L. H.....Germantown
Hill, Wm. I.....Albemarle
Holloway, Robt. L.....West Durham
Holt, Wm. P., Sr.....Erwin
*Holt, Wm. T.....Greensboro
Hooks, Thel .....Smithfield
Horton, W. C.....Raleigh
Houck, Albert F.....Lenoir
Houser, E. A.....Shelby
Hubbard, C. C.....Farmer
*Hudson, Wm. L.....Dunn
*Hughes, Francis W.....New Bern
Hunter, L. W.....Charlotte
Ingram, Chas. B.....Mt. Gilead
*Irwin, J. R.....Charlotte
*Jenkins, Chas. L.....Raleigh
Jewett, Robert D.....Wilmington
John, Peter .....Laurinburg
Johnson, N. M.....Durham
Johnson, Thos. C.....Lumberton
Jonas, John F.....Marion
Jones, Clara E.....Goldsboro
*Jones, A. G.....Walnut Cove
Jones, W. M.....Gastonia
Jordan, Chas. S.....Asheville
*Jordan, T. M.....Raleigh
Judd, J. M.....Varina
Julian, Charles A.....Greensboro
*Kapp, Henry H.....Winston-Salem
Kent, Alfred A.....Winter Park, Fla.
Kerr, J. Edwin.....Winston-Salem
King, Parks M.....Charlotte
Kirby, Guy S.....Marion
Kirk, W. R.....Hendersonville
*Knight, J. B. H.....Williamston
Knight, Wm. P.....Greensboro
Knox, A. W.....Raleigh
Koonce, S. E.....Wilmington
Lamm, Isaac W.....Raleigh
Lattimore, E. B.....Shelby
*Laughinghouse, Chas. O'H.....Raleigh
Lee, Lawrenve V.....Lattimore
*Leggett, Kenelm.....Hobgood
*Lewis, Geo. W.....Wilson
Lewis, H. W.....Jackson
*Lewis, R. H.....Raleigh
Lilly, Jas. M.....Fayetteville
Linville, A. Y.....Winston-Salem
Lockett, Everett A.....Winston-Salem
*Long, Benj. L.....Hamilton
*Long, Geo. W.....Graham
Long, H. F.....Statesville
*Long, J. W.....Greensboro
*Love, W. J.....Wilmington
*Lyle, S. H.....Franklin
McAnally, W. J.....High Point
McBrayer, L. B.....Southern Pines
McCain, Wm. R.....High Point
McCampbell, John .....Morganton
McCracken, C. M.....Fairview

*Deceased.

McCracken, J. R. ..... Waynesville
*McDonald, A. D. ..... Wilmington
McGeachy, R. S. ..... Greenville
McGee, J. W. ..... Raleigh
McIver, Lynn ..... Sanford
*McKay, A. M. ..... Summerville
*McKay, John A. ..... Buies Creek
McKay, Joseph F. ..... Buies Creek
*McKee, James ..... Raleigh
*McKenzie, W. W. ..... Salisbury
McLaughlin, C. S. ..... Charlotte
McLaughlin, J. E. ..... Statesville
McLeod, A. H. ..... Aberdeen
McMillan, Benj. F. ..... Red Springs
*McMillan, J. D. ..... Lumberton
*McMillan, J. L. ..... Red Springs
McMillan, W. D. ..... Wilmington
*McNeill, J. W. ..... Fayetteville
*McNeill, Wm. M. ..... Buies Creek
McPherson, S. D. ..... Durham
Malloy, S. A. ..... Yanceyville
Manning, I. H. ..... Chapel Hill
*Manning, J. M. ..... Chapel Hill
Matthews, Jas. O. ..... Clinton
Meadows, W. J. ..... Greensboro
Menzies, H. C. ..... Hickory
*Michaux, E. R. ..... Greensboro
*Miller, J. F. ..... Goldsboro
Miller, Robert B. ..... Goldsboro
*Minor, Chas. L. ..... Asheville
*Misenheimer, C. A. ..... Charlotte
*Misenheimer, Theo. F. ..... Morven
Monk, Henry L. ..... Salisbury
*Monroe, W. A. ..... Sanford
*Montgomery, John C. ..... Charlotte
Moore, C. E. ..... Wilson
*Moore, Edwin G. ..... Elm City
Morris, J. A. ..... Oxford
Moseley, Chas. W. ..... Greensboro
Munroe, J. P. ..... Charlotte
*Murphy, John G. ..... Wilmington
Myers, John Q. ..... Charlotte
Nelson, R. J. ..... Robersonville
Nichols, Rhodes E. ..... Durham
*Nicholson, J. L. ..... Richland
Nicholson, P. A. ..... Washington
*Nicholson, Sam T. ..... Washington
Nisbet, W. O. ..... Charlotte
*Noble, R. J. ..... Selma
Nobles, Jos. E. ..... Greenville
Orr, Porter B. ..... Asheville
Parker, G. E. ..... Benson
Parrott, J. M. ..... Kinston
Parrott, Wm. Thomas ..... Kinston
*Pate, Wm. T. ..... Gibson
*Pemberton, Wm. D. ..... Concord
Person, James B., Jr. ..... Selma
*Perry, M. P. ..... Macon
Petrie, Robt. Wm. ..... Lenoir
Pfohl, Samuel F. ..... Winston-Salem
*Pharr, T. F. ..... Concord
*Pharr, Wm. W. ..... Charlotte
*Phillips, Matthew D. ..... Dalton
Pickett, John A. ..... Burlington
Lewis, Geo. W. ..... Wilson
*Picot, L. J. ..... Littleton
Pope, Henry T. ..... Lumberton
Pressly, G. W. ..... Charlotte
*Prince, D. M. ..... Laurinburg
Quickel, Thos. C. ..... Gastonia
Rankin, W. S. ..... Charlotte
Ray, O. L. ..... Raleigh, Rt. 1
Redding, Alex H. ..... Asheboro
*Register, Edw. C. ..... Charlotte
Register, F. M. ..... Goldsboro
Reid, Geo. P. ..... Forest City
Reitzel, Claude E. ..... High Point
Reynolds, C. V. ..... Asheville
Ricks, Leonard E. ..... Fairmont
*Ritter, F. W. ..... Moyock
*Roberson, Chas. ..... Greensboro
Rodman, J. C. ..... Washington
Rodwell, J. W. ..... Mocksville
Rogers, Jas. Rufus ..... Raleigh
Rogers, Wiley A. ..... Franklin
Ross, Geo. H. ..... East Durham
Royall, M. A. ..... Elkin
Royster, H. A. ..... Raleigh
Royster, S. S. ..... Shelby
*Royster, W. I. ..... Raleigh
Sawyer, C. J. ..... Windsor
Sawyer, W. W. ..... Elizabeth City
*Schaub, O. P. ..... Winston-Salem
Schonwald, J. T. ..... Wilmington
Sevier, D. E. ..... Asheville
Sevier, J. T. ..... Asheville

*Deceased.

*Schaffner, J. F., Sr.....Winston-Salem
*Shamburger, J. B.....Star
Shaw, W. G.....Wagram
Shields, H. B.....Carthage
Sikes, G. L.....Salemburg
*Sikes, G. T.....Creedmoor
Skinner, Louis C.....Greenville
*Smith, J. B.....Pilot Mountain
*Smith, R. A.....Goldsboro
Smithwick, Jas. E.....Jamesville
Smoot, J. E.....Concord
*Snipes, E. P.....Jonesboro
Spainhour, Ellis H.....Winston-Salem
*Speight, R. H., Sr.....Whitakers
Spencer, W. O.....Winston-Salem
*Stamps, Thos.....Lumber Bridge
Stanton, D. A.....High Point
*Stevens, J. A.....Clinton
Stevens, M. L.....Asheville
*Stewart, H. D.....Monroe
Stokes, Jas. Ernest .....Salisbury
Street, M. E.....Glendon
Strickland, Edw. F.....Winston-Salem
Stringfield, Thos. .....Waynesville
Strong, Chas. Moore.....Charlotte
Summerell, E. M.....China Grove
*Summers, Chas. L.....Baltimore, Md. (Forsyth Co.)
*Tayloe, D. T., Sr.....Washington
*Taylor, I. M.....Morganton
Taylor, Wm. L.....Oxford
Tennent, G. S.....Asheville
*Thomas, G. G.....Wilmington
Thompson, Alex. Frank.....Troy
Thompson, C. D.....High Point
*Trantham, H. T.....Salisbury
*Tull, Henry .....Kinston
Turner, J. P.....Greensboro
*Van Poole, C. M.....Salisbury
Vestal, W. J.....Lexington
*Von Ruck, Karl.....Asheville
Walker, H. D.....Elizabeth City
*Ward, W. H.....Plymouth
*Way, J. Howell.....Waynesville
Weaver, H. B.....Asheville
Webb, B. G. .....Andrews
Wessell, Jno. C.....Wilmington
West, Robt. M.....Salisbury
*Wharton, L. D.....Smithfield
Whisnant, A. M.....Charlotte
*Whitaker, R. A.....Kinston
*White, J. W.....Wilkesboro
*Whitehead, John .....Salisbury
*Whitehead, W. H.....Rocky Mount
Whitfield, Wm. Cobb.....Salisbury
*Whittington, W. P.....Asheville
Whittington, Wm. W.....Snow Hill
Wilkins, S. A.....Dallas
Williams, Alfred F.....Wilson
Williams, John D.....Guilford Station
*Williams, J. H.....Asheville
Wilson, A. R.....Greensboro
Wilson, Robt. B.....Newton Grove
Wood, J. W.....Boiling Springs
Wright, Jno. B.....Raleigh
Yarborough, Richard F.....Louisburg
*Young, R. S.....Concord

*Deceased.

HONORARY MEMBERS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

*L. McL. Tiffany.....Baltimore, Md.
*W. W. Keen.....Philadelphia, Pa.
J. Allison Hodges.....Richmond, Va.
*R. L. Payne.....Norfolk, Va.
*J. N. McCormack.....Bowling Green, Ky.
R. L. Payne, Jr.....Norfolk, Va.
*J. L. Ludlow, C.E.....Winston-Salem
Paul V. Anderson.....Richmond, Va.
Stuart McGuire.....Richmond, Va.
William J. Mayo.....Rochester, Minn.
William Seaman Bainbridge.....New York, N. Y.
William Sharpe.....New York, N. Y.
William McKim Marriott.....St. Louis, Mo.
James K. Hall.....Richmond, Va.

*Deceased.

OFFICERS, 1933-1935

OFFICERS, 1933-34

President—Dr. I. H. Manning ..... Chapel Hill
President-Elect—Dr. P. P. McCain ..... Sanatorium
First Vice-President—Dr. R. L. Felts ..... Durham
Second Vice-President—Dr. H. D. Walker ..... Elizabeth City
Secretary-Treasurer—Dr. L. B. McBrayer ..... Southern Pines, 1931-1934

OFFICERS, 1934-1935

President—Dr. P. P. McCain ..... Sanatorium
President-Elect—Dr. Paul H. Ringer ..... Asheville
First Vice-President—Dr. J. F. McKay ..... Buies Creek
Second Vice-President—Dr. William Allen ..... Charlotte
Secretary-Treasurer—Dr. L. B. McBrayer, 1934-1937 ..... Southern Pines

COUNCILLORS, 1934-1937

First District—Dr. C. B. Williams ..... Elizabeth City
Second District—Dr. K. B. Pace ..... Greenville
Third District—Dr. J. F. Robertson ..... Wilmington
Fourth District—Dr. E. S. Boice ..... Rocky Mount
Fifth District—Dr. Roscoe D. McMillan ..... Red Springs
Sixth District—Dr. W. M. Coppridge ..... Durham
Seventh District—Dr. Forest M. Houser ..... Cherryville
Eighth District—Dr. R. C. Mitchell ..... Mount Airy
Ninth District—Dr. J. R. Terry ..... Lexington
Tenth District—Dr. G. W. Murphy ..... Asheville

CHAIRMEN OF SECTIONS, 1934-1935

Public Health and Education—Dr. J. C. Knox ..... Raleigh
Surgery—Dr. B. C. Willis ..... Rocky Mount
Ophthalmology and OtoRhinoLaryngology—Dr. B. W. Fassett ..... Durham
Gynecology and Obstetrics—Dr. E. C. Hamblen ..... Durham
Pediatrics—Dr. W. Myers Hunter ..... Charlotte
Practice of Medicine—Dr. Verne S. Caviness ..... Raleigh

DELEGATES TO AMERICAN MEDICAL ASSOCIATION

Dr. M. L. Stevens, 1935-1936 inclusive, Dr. H. A. Royster, Alternate ..... Raleigh
Dr. D. A. Garrison, Alternate Dr. W. M. Johnson, 1934 and 1935 .....
Dr. Geo. L. Carrington, 1934 and 1935 ..... Burlington

DELEGATES TO MEDICAL SOCIETY OF VIRGINIA

Dr. C. T. Smith ..... Rocky Mount
Dr. B. C. Willis ..... Rocky Mount
Dr. R. B. Wilkins ..... Raleigh
Dr. F. H. Garris ..... Lewiston

DELEGATES TO SOUTH CAROLINA MEDICAL SOCIETY

Dr. J. B. Sidbury ..... Wilmington
Dr. A. G. Brenizer ..... Charlotte
Dr. I. T. Mann ..... High Point

DELEGATES TO NORTH CAROLINA DENTAL SOCIETY

Dr. H. B. Hiatt ..... High Point
Dr. H. B. Ivey ..... Goldsboro
Dr. R. M. Beam ..... Lumberton
Dr. W. B. Dewar ..... Raleigh

COMMITTEES

Medical Society Foundation

Dr. M. L. Stevens, 3 years ..... Asheville
Dr. L. B. McBrayer, 2 years ..... Southern Pines
Dr. J. M. Parrott, 1 year ..... Raleigh
Dr. Reid Patterson, 5 years ..... Charlotte
Dr. J. B. Sidbury, 4 years ..... Wilmington

Obituaries

Dr. C. A. Julian ..... Greensboro
Dr. J. B. Cranmer ..... Wilmington
Dr. J. F. Abel ..... Waynesville

Legislation

Dr. B. J. Lawrence, *Chairman* ..... Raleigh
Dr. T. W. M. Long ..... Roanoke Rapids
Dr. J. F. Highsmith ..... Fayetteville

Moore County Medical Society Medal

Dr. A. H. McLeod, *Chairman* ..... Aberdeen
Dr. Deryl Hart ..... Durham
Dr. Wm. deB. MacNider ..... Chapel Hill

Printing

Dr. L. B. McBrayer, *ex officio, chairman* ..... Southern Pines
Dr. J. W. Dickie ..... Southern Pines
Dr. E. C. Judd ..... Raleigh

Committee on Hospitals

Dr. J. F. Highsmith ..... Fayetteville
Dr. J. M. Proctor ..... Raleigh
Dr. Foy Roberson ..... Durham
Dr. James W. Davis ..... Statesville

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

1932-1938

Dr. Wm. H. Smith, *President* ..... Goldsboro
Dr. Benj. J. Lawrence, *Secretary* ..... Raleigh
Dr. Ben. F. Royal ..... Morehead City
Dr. F. Webb Griffith ..... Asheville
Dr. Hamilton W. McKay ..... Charlotte
Dr. J. W. Vernon ..... Morganton
Dr. Wm. H. Smith ..... Goldsboro
Dr. K. G. Averitt ..... Cedar Creek

STATE BOARD OF EXAMINERS FOR NURSES

Miss Bessie M. Chapman, R.N., *President* ..... Greensboro
Miss Lula West, R.N., *Secretary-Treasurer and Educational Director* ..... Mount Airy
Dr. D. A. Garrison, (From Hospital Association, 1931-1934) ..... Gastonia
Dr. C. H. Peete, (From Medical Society, 1934-1936) ..... Warrenton

ARRANGEMENTS

Dr. J. W. Dickie, *Chairman* ..... Southern Pines
Place of Meeting ..... Pinehurst
Date ..... May 6, 7, 8, 1935
Headquarters ..... The Carolina

PROGRAM OF GENERAL SESSIONS

FIRST GENERAL SESSION

TUESDAY, MAY 1, 9:30 A.M.

(Ball Room)

Miss Dorothy Siegal, *Reporter*

Dr. W. C. Mudgett, Chairman, Committee on Arrangements, Southern Pines, presiding.

Invocation—Rev. T. A. Cheatham, Pinehurst.

Presentation of President's Jewel to Dr. I. H. Manning by Dr. P. P. McCain, Sanatorium, President-elect.

Presentation of the President by Dr. W. C. Mudgett, Chairman, Committee on Arrangements.

President's Address—Dr. I. H. Manning, Chapel Hill.

Report of Committee on Moore County Medical Society Medal and Presentation of Medal for best paper presented at last meeting: Dr. A. H. McLeod, Chairman, Dr. Deryl Hart, Dr. Wm. deB. MacNider.

Report of Obituary Committee, Dr. C. R. Sharpe, Chairman, Lexington.

Guest Speaker: Dr. Fred W. Rankin, Lexington, Ky. "Some Problems in the Diagnosis and Treatment of Cancer of the Rectum."

"Use of Ether in Peritonitis and other Infections." Dr. Roy B. McKnight, Charlotte. From Section on Surgery.

Guest Speaker—J. A. Sinclair, D.D.S., Asheville, from North Carolina Dental Society. "Oral Diagnosis."

"Diagnosis and Treatment of Conjunctivitis." Dr. S. R. Taylor, Greensboro. From Section on Opthalmology and OtoRhinoLaryngology.

"A Plea for Conservative Pelvic Surgery." Dr. Kemp P. Neal, Raleigh. From Section on Gynecology and Obstetrics.

SECOND GENERAL SESSION

TUESDAY, MAY 1, 6:00 P.M.

Dinner Meeting—Main Dining Room

Dr. I. H. Manning, President, presiding.

Song: America, led by Mr. Chas. W. Piquet, Pinehurst.

Address: Mrs. J. W. Huston, President, Women's Auxiliary to the Medical Society of the State of North Carolina.

Address: Dr. R. G. Leland, Director, Bureau of Economics, American Medical Association, Chicago, Ill. Subject: "Newer Trend in Medical Practice."

Address: Hon. J. C. B. Ehringhaus, Governor of North Carolina.

THIRD GENERAL SESSION

WEDNESDAY, MAY 2, 9:00 A.M.

(Ball Room)

Miss Dorothy Siegal, *Reporter*

"Treatment of Chronic Arthritis." Dr. D. T. Smith, Durham. From Section on Practice of Medicine.

"Heliotherapy, Is It Practicable." Dr. Lewis W. Elias, Asheville. From Section on Pediatrics.

Guest Speaker: Dr. T. Grier Miller, Philadelphia. Subject: "The Diagnosis and Treatment of Gastro-intestinal Disturbances from the Viewpoint of the General Practitioner."

"Prevention of Pellagra." Dr. W. J. McAnally, High Point.

"The Retarded Child in North Carolina." Dr. F. M. Register, Supt. Caswell Training School, Kinston.

"Infancy and Maternal Mortality as it Applies to the General Practitioner." Dr. Forest M. Houser, Cherryville. From Section on Public Health and Education.

Election one member Board of Examiners for Nurses.

12:00 m. Conjoint Session of the Medical Society of the State of North Carolina and the State Board of Health.

MEMBERS OF THE NORTH CAROLINA STATE BOARD OF HEALTH

Carl V. Reynolds, M. D., President, Asheville
S. D. Craig, M.D., Vice-President, Winston-Salem
G. G. Dixon, M.D., Ayden
H. Lee Large, M.D., Rocky Mount
J. N. Johnson, D.D.S., Goldsboro
H. G. Baity, Sc.D., Chapel Hill
W. T. Rainey, M.D., Fayetteville
Hubert B. Haywood, M.D., Raleigh
James P. Stowe, Phg., Charlotte

EXECUTIVE STAFF

James M. Parrott, M. D., Secretary and State Health Officer.
G. M. Cooper, M. D., Director Division of Preventive Medicine.
Warren H. Booker, C.E., Director Division of Sanitary Engineering.
Ernest A. Branch, D.D.S., Director Division of Oral Hygiene.
John H. Hamilton, M.D., Director Division of Laboratories and Vital Statistics.
M. V. Ziegler, M.D., Acting Director County Health Work.
J. C. Knox, M.D., Director Division of Epidemiology.

FOURTH GENERAL SESSION

WEDNESDAY, MAY 2, 8:00 P.M.
(Ball Room)
Miss Dorothy Siegal, *Reporter*

Report of the House of Delegates.

Unfinished business.

New business.

Installation President Dr. P. P. McCain and President-elect by retiring President, Dr. I. H. Manning.

Remarks by the President and President-elect.

Adjourn sine die.

SECTION MEETINGS

SECTION ON SURGERY

TUESDAY, MAY 1, 2:00 P.M.

(Ball Room)

Dr. Addison G. Brenizer, Charlotte, *Chairman*

Mr. Harold Alderson, Reporter

1. Rankin, Dr. Fred W., Lexington, Ky.—"Cancer of Colon." Discussion, Dr. Frank K. Boland, Atlanta Ga., Dr. Robert L. Payne, Norfolk, Va.

2. Roberson, Dr. Foy, Durham—"Torticollis." Discussion, Dr. Hugh Thompson, Raleigh, Dr. A. R. Shands, Durham.

3. Leinbach, Dr. R. F., Charlotte, Brenizer, Dr. Addison G., Charlotte—"Compression of the Spinal Cord—Its Surgery."

4. Crawford, Dr. Robert H., Rutherfordton—"Adamantinoma." Discussion, Dr. Donnell B. Cobb, Goldsboro.

5. Cobb, Dr. Donnell B., Goldsboro—"Congenital Hypertrophic Stenosis." Discussion, Dr. David T. Tayloe, Washington, Dr. James B. Sidbury, Wilmington.

6. Willis, Dr. B. C., Rocky Mount—"Diagnosis and Treatment of Duodenal Ulcer Complications." Discussion, Dr. Robert H. Crawford, Rutherfordton, Dr. Hunter McG. Sweaney, Durham.

7. Jones, Dr. Randolph, Jr., Durham, Hart, Dr. Deryl, Durham—"Self Inflicted Injuries" Discussion, Dr. Robert L. Payne, Norfolk, Va., Dr. Frank K. Boland, Atlanta, Ga., Dr. Fred W. Rankin, Lexington, Ky., Dr. Hubert A. Royster, Raleigh.

8. McKnight, Dr. Roy B., Charlotte—"The Use of Ether in Peritonitis and Other Infections." Before First General Session.

SECTION ON GYNECOLOGY AND OBSTETRICS

TUESDAY, MAY 1, 2:00 P.M.

(Ladies' Card Room)

Dr. John Lester Ranson, Charlotte, *Chairman*

Mrs. Augusta Grimm, *Reporter*

1. Tayloe, Dr. J. C., Tayloe Hospital, Washington, Tayloe, Dr. D. T., Tayloe Hospital, Washington—"Epigastrius Parasiticus."

2. Franklin, Dr. E. W., Jr., Charlotte—"Dietary Deficiency in Obstetrics."

3. Hamblen, Dr. E. C., Durham—"Some Observations on Endocrinal Therapy of Menstrual Disorders."

4. Smith, Dr. Annie T., Durham—"Trichomonas Vaginalis Vaginitis."

5. White, Dr. Robert A., Asheville—"Premature Interruption of Gestation."

6. Sharpe, Dr. Frank A., Greensboro—"The Treatment of Eclampsia" (with slides).

7. Ranson, Dr. J. Lester, Charlotte—"Pyelitis During Pregnancy."

8. Neal, Dr. Kemp P., Raleigh—"A Plea for Conservative Pelvic Surgery."

Before First General Session.

SECTION ON OPHTHALMOLOGY AND OTORHINOLARYNGOLOGY

TUESDAY, MAY 1, 2:00 P.M.

(Men's Card Room)

Dr. Vance P. Peery, Kinston, *Chairman*

Dr. B. W. Fassett, Durham, *Secretary*

Miss Dorothy Siegal, *Reporter*

1. Peery, Dr. Vance Price, Kinston (Chairman's Address)—"Endoscopy from an Economic Standpoint."

2. Gibson, Dr. M. R., Raleigh—"The Fallacy of Tonsillectomy by Diathermy as a Routine Measure." Discussion, Dr. W. W. Sawyer, Elizabeth City.

3. Sawyer, Dr. W. W., Elizabeth City—"Bilateral Lympho Sarcoma of the Tonsils."

4. Coleman, Dr. C. C., Richmond, Va. (Invited Guest)—"Brain Abscesses Secondary to Infection of the Paranasal Sinuses."

5. Motley, Dr. Fred E., Charlotte—"Complications of Mastoiditis—With Special Reference to Septicemia." Discussion, Dr. Joseph B. Greene, Asheville.

6. Briggs, Dr. H. H., Asheville—"Management of Convergent Squint." Discussion, Dr. H. L. Sloan, Charlotte.

7. Jordan, Dr. Wm. S., Fayetteville—"Mikulicz's Disease—Report of a Case." Discussion, Dr. Frank C. Smith, Charlotte, Dr. V. M. Hicks, Raleigh.

8. Taylor, Dr. S. R., Greensboro—"Diagnosis and Treatment of Conjunctivitis."

Before First General Session.

SECTION ON PRACTICE OF MEDICINE

WEDNESDAY, MAY 2, 2:00 P.M.

(Ball Room)

Dr. P. A. Shelburne, Greensboro, *Chairman*

Miss Dorothy Siegal, *Reporter*

1. Caviness, Dr. Verne S., Raleigh—"The Treatment of Spirochetal Bronchiectasis." Discussion, Dr. S. M. Bittinger, Sanatorium, Dr. David T. Smith, Durham.

2. Johnson, Dr. W. M., Winston-Salem—"The Emotional Factor in the Practice of Medicine." Discussion, Dr. Fred M. Hanes, Durham.

3. Hill, Dr. Milliard D., Raleigh—"Endocrinology and Uterine Bleeding." Discussion, Dr. A. S. Olive, Raleigh.

4. Davis, Dr. Stephen W., Charlotte—"Idiopathic Hypochromic Anemia." Discussion, Dr. William Allan, Charlotte.

5. Flagge, Dr. P. W., High Point—"Review of Five Hundred Electrocardiagrams." Discussion, Dr. J. T. Taylor, Greensboro.

6. Ravenel, Dr. S. F., Greensboro—"Rocky Mountain Spotted Fever." Discussion, Dr. Douglas Sprunt, Durham.

7. Castelloe, Dr. Cola, Windsor—"The Poisonous Spiders—The Black Widow." Discussion, Dr. C. T. Smith, Rocky Mount, Dr. Dewitt Kluttz, Washington.

8. Smith, Dr. David T., Durham—"Treatment of Chronic Arthritis."

Before Third General Session, Wednesday, May 2nd.

SECTION ON PEDIATRICS

WEDNESDAY, MAY 2, 2:00 P. M.

(Ladies' Card Room)

Dr. S. Stewart Saunders, High Point, *Chairman*

Mrs. Augusta Grimm, *Reporter*

1. Saunders, Dr. S. Stewart, High Point (Chairman's Address)—"Scarlet Fever Prophylaxis."

2. Allen, Dr. Sylvia, Charlotte—"Epilepsy." Discussion, Dr. John R. Ashe, Charlotte.

3. Craven, Dr. Jean D., Durham—"Hirschsprung's Disease." Discussion.

4. Ward, Dr. John LaBruce, Asheville—"Stimulants—Useful and Otherwise." Discussion, Dr. Lewis W. Elias, Asheville.

5. Ashe, Dr. John R., Charlotte—"Basophilic Pituitary Adenoma." Discussion, Dr. Sylvia Allen, Charlotte.

6. Hunt, Dr. Joseph S., Charlotte—"Malnutrition." Discussion.

7. Elias, Dr. Lewis W., Asheville—"Heliotherapy, Is It Practicable."

Before Third General Session, Wednesday, May 2nd.

SECTION ON PUBLIC HEALTH AND EDUCATION

WEDNESDAY, MAY 2, 2:00 P. M.

(Men's Card Room)

Dr. Robert E. Rhyne, Gastonia, *Chairman*

Mr. Harold Alderson, *Reporter*

1. Bulla, Dr. A. C., Raleigh—"Whom Should Receive Preventive Medicine From the Health Department."

2. Hege, Dr. J. Roy, Winston-Salem—"Health Education of the Public."

3. Cooper, Dr. G. M., Raleigh—"Infancy and Maternity Mortality."

4. Knox, Dr. J. C., Raleigh—"Preventive Medicine by Inoculation."

5. Houser, Dr. Forest M., Cherryville—"Infancy and Maternal Mortality as it Applies to the General Practioner." Before Third General Session.

WOMEN'S AUXILIARY TO THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

OFFICERS

President—Mrs. J. W. Huston ..... Asheville
President-elect—Mrs. J. B. Sidbury ..... Wilmington
First Vice-President—Mrs. W. P. Knight ..... Greensboro
Second Vice-President—Mrs. Reid Patterson ..... Charlotte
Third Vice-President—Mrs. K. B. Pace ..... Greenville
Treasurer—Mrs. E. C. Judd ..... Raleigh
Corresponding Secretary—Mrs. A. T. Hipps ..... Asheville
Recording Secretary—Mrs. P. P. McCain ..... Sanatorium

COUNCILLORS

First District—
Second District—Mrs. R. S. McGeachy ..... Greenville
Third District—Mrs. J. C. Wessell ..... Wilmington
Fourth District—Mrs. W. H. Cobb ..... Goldsboro
Fifth District—Mrs. A. B. Holmes ..... Fairmont
Sixth District—Mrs. G. H. Macon ..... Warrenton
Seventh District—
Eighth District—Mrs. A. D. Ownbey ..... Greensboro
Ninth District—Mrs. J. R. Terry ..... Lexington
Tenth District—Mrs. B. L. Ashworth ..... Marion

MONDAY, APRIL 30

3:30 p. m.—Ride to State Sanatorium

4:30 p. m.—Tea: Residence of Dr. and Mrs. P. P. McCain
Hostess: Auxiliary to Hoke County Medical Society
Honorees: Mrs. James Blake, Mrs. J. W. Huston, Mrs. I. H. Manning, Mrs. J. B. Sidbury

TUESDAY, MAY 1

9:30 a. m.—Opening Session, State Medical Society
President's Address, Dr. I. H. Manning, Chapel Hill

10:00 a. m.—Executive Board Meeting, Women's Auxiliary, Dutch Room

11:00 a. m.—Annual Auxiliary Meeting, Ladies' Card Room

2:00 p. m.—Bridge

6:00 p. m.—Dinner Meeting (see information for ladies, below)

9:00 p. m.—President's Reception and Twelfth Annual Medical Society Ball

WEDNESDAY, MAY 2

10:00 a. m.—Drive
Orchid Gardens, Knollwood, Southern Pines
Ambassador Page's Tomb, Aberdeen

2:00 p. m.—Executive Meeting, Women's Auxiliary, Dutch Room.

INFORMATION FOR LADIES

1. Register on arrival and receive badge. $1.00 registration fee for all who do not present 1933-1934 membership card.

2. Wear badge to all functions.

3. No extra charge for dinner meeting for those stopping at The Carolina. $1.50 for others.

LADIES' ENTERTAINMENT COMMITTEE

Mrs. W. C. Mudgett, *Chairman*.....Southern Pines
Mrs. A. McN. Blair.....Southern Pines
Mrs. J. S. Milliken.....Southern Pines
Mrs. E. L. Prizer.....Southern Pines
Mrs. E. M. Poate.....Southern Pines
Mrs. P. J. Chester.....Southern Pines
Mrs. J. W. Dickie.....Southern Pines
Mrs. R. G. Rosser.....Vass
Mrs. A. McN. Blue.....Carthage
Mrs. Chas. T. Grier.....Carthage
Mrs. John Symington.....Carthage
Mrs. H. E. Bowman.....Aberdeen
Mrs. M. W. Marr.....Pinehurst
Mrs. P. P. McCain.....Sanatorium
Mrs. S. M. Bittinger.....Sanatorium
Mrs. J. S. Williams.....Sanatorium
Mrs. C. G. Milham.....Sanatorium
Mrs. Alban Papineau.....Sanatorium
Mrs. C. D. Thomas.....Sanatorium
Mrs. W. F. Thornton.....Sanatorium

TUESDAY, MAY 1, 11:00 A. M., LADIES' CARD ROOM

PROGRAM

MRS. J. W. HUSTON, *President*, Presiding

Address of Welcome—Mrs. H. E. Bowman.....Aberdeen

Invocation—Rev. J. Fred Stimson.....Southern Pines

Response to Welcome—Mrs. I. H. Manning.....Chapel Hill

Reading of Minutes—Mrs. P. P. McCain, Recording Secretary.....Sanatorium

Reports of Officers:

Recording Secretary—Mrs. P. P. McCain.....Sanatorium
Treasurer—Mrs. E. C. Judd.....Raleigh
Corresponding Secretary—Mrs. A. T. Hipps.....Asheville
Historian—Mrs. J. A. Keiger.....Greensboro

Councillors of the Ten Districts

Reports of Committees:

Student Loan Fund—Mrs. W. B. Murphy, *Chairman* ..... Snow Hill

Public Relations—Mrs. J. O. McClelland, *Chairman* ..... Maxton

Hospital Bed—Mrs. Reid Patterson, *Chairman* ..... Charlotte

Hygeia—Mrs. W. A. Brewton, *Chairman* ..... Enka

Entertainment—Mrs. W. C. Mudgett, *Chairman* ..... Southern Pines

Impressions of the Auxiliary to the American Medical Association Meeting, Milwaukee
Mrs. M. L. Stevens ..... Asheville

New Business

Greetings—Dr. I. H. Manning, President, Medical Society of the State of North Carolina ..... Chapel Hill

Address of President—Mrs. J. W. Huston ..... Asheville

Address—Mrs. James Blake, President of the Woman's Auxiliary to the American Medical Association ..... Hopkins, Minn.

Round Table Discussion
Leader—Mrs. James Blake

Election of Officers

Announcements—Mrs. J. B. Sidbury

Report of Courtesy Committee

Adjournment

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

Twenty-Fourth Annual Meeting

MONDAY, APRIL 30, 1934

(Ladies' Card Room)

Papers Limited to Twenty Minutes—Discussion to Five Minutes

President—Dr. F. M. Register, Kinston

Vice-President—Dr. Z. P. Mitchell, Weldon

Secretary—Dr. D. E. Ford, Washington

PROGRAM

9:30 a. m.—Registration

9:45 a. m.—Invocation—Rev. T. A. Cheatham, D.D., Pinehurst

10:00 a. m.—President's Address—Dr. F. M. Register, Kinston: "A New Deal in Public Health"

10:30 a. m.—"Results of Pitt County Tonsil and Adenoid Clinic"—Dr. R. S. McGeachy, Greenville

Discussion—Dr. R. E. Broadway, Tarboro

11:00 a. m.—"Maternal Mortality in North Carolina—Second Report"—Dr. John H. Hamilton, Director State Laboratory of Hygiene, Raleigh; Dr. D. F. Milam, Raleigh; Dr. R. T. Stimpson.

Discussion—Dr. W. Z. Bradford, Charlotte

11:30 a. m.—"The Mouth Health Survey and its Practical Possibilities as a Health Measure"—Dr. J. Martin Fleming, Raleigh

Discussion—Ernest A. Branch, D.D.S., Raleigh

12:00 m. —Resolutions and Appointment of Committees

Afternoon Session

2:00 p. m.—"Rural Public Health Nursing"—Miss Marie Farley, R.N., Goldsboro

Discussion—Dr. M. V. Ziegler, Raleigh

2:30 p. m.—Address—Dr. C. C. Hudson, Greensboro

3:00 p. m.—"School Sanitation"—Warren H. Booker, C.E., Director Division Sanitary Engineering

Discussion

3:30 p. m.—Reports of Committees

Announcements

Evening Session

8:00 p. m.—Mr. Taylor Attmore, Member of the Equalization Board, Washington

New Business

Election of Officers

Adjournment

TRANSACTIONS

OF THE

EIGHTY-FIRST ANNUAL MEEETING

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

PINEHURST, APRIL 30, MAY 1 and 2, 1934

SESSIONS OF THE HOUSE OF DELEGATES

MONDAY EVENING, APRIL 30, 1934

The first session of the House of Delegates of the Medical Society of the State of North Carolina convened in the Ball Room of the Carolina Hotel, Pinehurst, North Carolina, at 8:30 o'clock, Dr. I. H. Manning, President of the Society, presiding.

PRESIDENT MANNING: The House of Delegates will please come to order, and I will ask the delegates to occupy the front seats. We like to separate the goats from the sheep.

I will ask the Secretary to call the roll.

. . . Secretary McBrayer called the roll . . . and the following duly elected delegates were present:

ROLL CALL

County	*Delegate*
Alamance-Caswell	Geo. L. Carrington
Anson	C. I. Allen
Avery	Eustus Sloop
Beaufort	DeWitt Kluttz
Bertie	
Bladen	
Brunswick	
Buncombe	G. W. Murphy, M. L. Stevens, C. V. Reynolds, J. A. Moore
Burke	E. H. E. Taylor
Cabarrus	
Caldwell	
Carteret	K. P. B. Bonner
Catawba	
Chatham	W. B. Chapin
Cherokee	
Chowan-Perquimans	G. E. Newby
Cleveland	B. B. Matthews
Columbus	R. A. Sadler
Craven	

Cumberland ..... J. F. Highsmith
Currituck .....
Davidson ..... J. R. Terry
Davie .....
Duplin .....
Durham-Orange ..... W. B. McCutcheon, W. C. Davison, W. M. Coppridge, R. L. Felts
Edgecombe-Nash ..... B. C. Willis, J. G. Raby
Forsyth ..... J. P. Rousseau, E. A. Lockett, T. C. Redfern
Franklin .....
Gaston ..... R. E. Rhyne
Gates ..... T. L. Carter
Granville ..... Joseph W. Thompson
Greene ..... J. H. Harper
Guilford ..... H. B. Hiatt, D. W. Holt, C. W. Banner, I. T. Mann
Halifax ..... T. W. M. Long
Harnett ..... J. W. Halford
Haywood ..... R. H. Stretcher
Henderson ..... John H. Woodcock
Hertford .....
Hoke ..... S. M. Bittinger
Hyde .....
Iredell-Alexander ..... Ross S. McElwee
Jackson ..... A. B. Sloan
Johnston .....
Jones .....
Lee ..... G. G. Chiles
Lenoir ..... Vance P. Peery
Lincoln ..... W. V. Costner, L. A. Crowell
McDowell .....
Macon-Clay .....
Madison .....
Martin .....
Mecklenburg ..... W. S. Rankin, Reid Patterson, T. C. Bost, R. B. McKnight
Mitchell ..... C. A. Peterson
Montgomery .....
Moore ..... J. S. Milliken, M. E. Street
New Hanover ..... J. F. Robertson, W. H. Moore
Northampton .....
Onslow .....
Pamlico .....
Pasquotank-Camden-Currituck-Dare ..... C. B. Williams
Pender .....
Person .....
Pitt ..... S. M. Crisp, G. G. Dixon
Polk .....
Randolph ..... R. P. Sykes
Richmond ..... W. D. James
Robeson ..... R. D. McMillan
Rockingham ..... Walter L. Tatum
Rowan .....
Rutherford .....
Sampson ..... Oscar E. Underwood
Scotland .....

Stanly ..... W. I. Hill
Stokes .....
Surry ..... H. L. Johnson
Swain .....
Transylvania .....
Union ..... J. W. Neal
Vance ..... C. A. Newell, C. N. Sisk
Wake..... John B. Wright, R. B. Wilkins, P. G. Fox, V. S. Caviness, B. J. Lawrence
Warren ..... C. H. Peete
Washington-Tyrell .....
Wayne ..... David J. Ross, C. F. Strosnider
Wilkes ..... F. C. Hubbard
Wilson ..... G. W. Mitchell
Yadkin .....
Yancey .....

Secretary McBrayer: The roll is called, and there is a quorum present.

President Manning: I have never been able quite to follow the beaten path, and I hope you will excuse me if I depart from it on this occasion.

. . . President Manning read his prepared address, as follows:

Members of the House of Delegates:

The House of Delegates is by authority of the constitution the legislative division of the State Medical Society, and is charged with the duty of directing all activities which will promote the welfare of the Society and the medical profession of North Carolina. As your president, I assume it an obligation to report to this body the state of the Society and its activities during my term of office.

Membership. The membership of the Society should include every physician licensed to practice medicine in North Carolina, and should be a mark of good standing in the profession and in the community. There is no accurate roster of the physicians practicing in the State, and as a matter of record it seems desirable to have such a roster in the files of the secretary. With the coöperation of your secretary lists in duplicate and by counties of all physicians who had at any time been members of the Society were made out and one sent to the secretary or some member of each county society with the request that the list be corrected. The results are tabulated by districts, as follows:

District	*Members*	*Non-members*	*Total*
1st	29	31	60
2nd	83	46	129
3rd	68	40	108
4th	126	49	175
5th	131	34	165
6th	222	42	264
7th	218	117	335
8th	209	121	330
9th	120	74	194
10th	178	68	246
Grand Totals	1384	622	2006
	200 honorary	(45%)	

You will observe that there are a number of physicians practicing in the State (approximately 600) who are not members of the State Society. In some counties there are a number who are members of the county society but who are not members of the State Society. This is obviously contrary to the plan and spirit of the organization and is destructive of any coöperative action in measures affecting the welfare of the profession. A member of the county society is automatically a member of the State Society and should be so regarded.

County Societies: The county society is the unit of our organization. At the present moment there are ..... counties without societies. The maintenance of a society in counties in which there are only a few scattered physicians is difficult although there are a few brilliant exceptions. It occurs to me that counties laboring under such difficulties, should affiliate with neighboring counties in the formation of an active organization. The objections raised to this suggestion are that the smaller county may lose its identity in the larger one and may also lose its representation in this body. To meet the latter objection and to encourage the formation of active units I recommend that where two or more counties have united, the representation existing prior to the affiliation be retained by each of the affiliating counties. It is obviously highly desirable that every physician practicing in the State should be a member of the organization and every technical difficulty in the way should be removed.

District Societies: So far as I have been able to observe the meetings of the district societies are well attended, the programs are highly creditable and helpful from every point of view. The scientific programs will convince any one of the splendid quality of medical practice being done in this State, that it is entirely unnecessary for any citizen of North Carolina to go out of the State for any sort of medical service. It has been suggested that a schedule of these meetings be posted with the Secretary early in the year so that conflicts, especially between adjoining districts, may be avoided. I recommend that this be done.

There is another matter of minor importance which, however, I believe is worth mentioning. It has become an almost universal custom in this

country to serve food in some form at meetings and such a custom prevails in the district and county society meetings. It has been the experience of the Alumni Associations that unless the dinner is a "Dutch treat" the meetings are likely to become burdensome and lead to disintegration. I recommend therefore that this practice become a uniform practice in all meetings.

FINANCES: The frequent offering of resolutions in this body to reduce the annual membership fee from five to three dollars would, if successful, be disastrous in my judgment. The Medical Society of the State of North Carolina cannot function with dignity and credit to the profession without adequate funds. I know of no record of accomplishment more worth while than is to be found in the Transactions of this Society and this alone is worth the fee. There are other matters of importance to the profession which should be adequately supported. I want to take this occasion to say that the affairs of the Society have been conducted with dignity and credit largely through the unselfish devotion of your secretary-treasurer. (Applause) May I add my personal appreciation of his untiring efforts in the interest of the Society and the profession and for his unfailing kindness and coöperation with me during my term of office. I have asked the Finance committee of which Dr. W. M. Coppridge is chairman, to present to you the budget indicating the objects for which disbursements should be provided. Such a budget was prepared, submitted and approved by the Executive Committee. At the proper time Dr. Coppridge will make his report and recommendations and the budget will be open for discussion.

In this connection, I wish to go on record as favoring an additional fee of $10.00 per member per year in order to set up a trust fund to be used for the benefit of members of the profession who have become disabled by illness or age and to be administered by a committee of the Society. I have investigated the possibilities of group insurance and it appears that none is available. There is, I think, nothing more tragic than a physician who has served his community and his profession faithfully for a life time to find himself disabled and without means of support. With a membership of 1600 and a fee of $10.00, there will be each year a fund of $16,000.00, which should be adequate.

PUBLIC RELATIONS: At a meeting of the Executive Committee held in August a committee on Public Relations, with Dr. Wingate M. Johnson as chairman, was set up. In my judgment this is one of the most important committees of our Society. The medical profession has been and will continue to be the target for many vocal and misinformed people. Some of our popular and influential magazines and newspapers seem to find peculiar delight in spreading stories of neglect and the failure of the medical profession to do its duty by the sick. The public needs to be informed of the accomplishments of modern medical practice and its limitations. It also needs to be informed of its obligations to the sick. Dr. Johnson will make his report at the proper time.

THE PUBLIC HEALTH: The public health should be a matter of gravest concern to the medical profession. Prevention of disease is one of the marvelous accomplishments of modern medicine and a glorious task for the profession. (This is a field which the cults have not seriously invaded.) A death from a preventable disease should be on our conscience until, by critical examination, we are able to absolve ourselves of responsibility.

The State Board of Health is a creation of this Society. The idea seems to have originated in the Eastern Medical Society at its meeting in Wilmington in 1876. It is easy to imagine that it came from the fertile brain of Dr. Thos. F. Wood, but it was carried to the State Society by Dr. S. S. Satchwell. In 1877 the Legislature established the State Board of Health and designated the State Medical Society as the State Board of Health. The Society very promptly appointed a committee with Dr. Satchwell as president and Dr. Wood as secretary. It was therefore intended to be, and is so regarded by Dr. Parrott, an integral part of the State Society. It was set up to bring about a coöperative effort between the State and the medical profession; its achievements make a splendid record unexcelled by any state of like resources.

The physicians and the health officers have a common objective; they should make the public health a common cause with a concordant program. Any avoidable overlapping is not only uneconomical, but will inevitably lead to friction between the physicians and the health officers and ultimate disaster to the cause. There is no more valuable evidence of the soundness of medical service than in the results of preventive medicine.

A theoretical division between the functions of the health officers and the practicing physicians in relation to a health program lies between the community on the one hand and the individual on the other. The functions of the health officers or the health department relate to those health measures affecting the community as a whole, largely matters of sanitation, sanitary inspection and health education,—whereas those of the physician relate to those health measures affecting the individual family or person. The disturbing element in this division of responsibility is the large mass of people who have neither family nor personal physician, and these people make up a large part of our social structure. This is the same disturbing element that enters every phase of our medical problem, but in this connection it is exaggerated because of its special character. A child with scarlet fever, or an adult with typhoid, irrespective of social rank or financial status, is a menace to the community and becomes at once a matter of serious community concern. The community has therefore the right to demand protection and neither the health officer nor the physician can absolve himself from responsibility for a failure to afford the protection demanded because of quibbling over details. The health officer, representing the responsible organization, is more directly responsible and should be more aggressive in carrying

through a program of protection. He has the right to demand that preventive measures be used in a systematic, organized fashion, and with reasonable economy. The medical profession cannot afford to be placed in a position of indifference to or of obstructing a program of health conservation.

I am therefore recommending that a committee from this Society be set up to meet with a committee of health officers appointed by the Secretary of the State Board of Health to develop a program for the immunization of susceptible people on some practicable basis of coöperation.

The State Board of Health, through Dr. Cooper, has called the attention of the profession to the high maternal and infancy death rate in this state. Seven states keep us from the bottom of the list. A survey of the maternal and infancy death rate in New York City led to the statement that a large percentage of maternal and infant deaths was to be charged to the carelessness, indifference or ignorance of the doctors. In this state we have the alibi of the midwife. Even so, the profession cannot escape responsibility. At a conference held in Dr. Cooper's office on March 27th the prevailing opinion of the group of general practitioners present was that the maternal and infancy death rate could be substantially reduced by adequate pre-natal care. A committee was appointed to set up a minimum of pre-natal care that may be reasonably demanded of a general practitioner who does obstetrical work, and on account of the importance and general interest of the problem I will ask Dr. H. H. Johnson, of Louisburg, Chairman of this committee, to report its recommendations. Dr. Parrott requests that a committee on maternity and infancy be made one of the permanent committees of the Society and I recommend that this be done.

If these special committees cannot be financed, we shall have to depend upon the representatives of this Society on the Board of Health to function in their place.

Cancer Committee: At a meeting of the Executive Committee last year, Dr. Wright, at the suggestion of the American Society on Control of Cancer, appointed a committee of which Dr. Carpenter of Wake Forest College was made chairman, to study the cancer problem in North Carolina, and coöperate with the national organization in the effort to control this disease which now stands third among the causes of death. This committee arranged for a clinic to be held at Wake Forest College with some notable national authorities on cancer to disuss the problem and to hold the clinics. It was well attended and was an excellent beginning. Dr. Carpenter will report for the committee.

State Institutions: There are important medical problems in the conduct of all state institutions. In the public schools the detection and correction of physical defects, of the causes and proper treatment of under or mal-nutrition and their correlation with mental backwardness

are not only medical and educational problems but present a serious economic problem. The refusal of the Equalization Board to allocate sufficient funds or to follow the suggestions made by representatives of the Medical Society last year prevented even an intelligent approach to the problem. I have attempted, with the coöperation of a committee of the Durham-Orange County Medical Society of which Dr. A. H. London is chairman, to make a preliminary study of the problem in Durham County. Dr. London and his committee offered to make a thorough study of the twelve hundred repeaters in the public schools of Durham City and County for the very small sum of $1500 but the school and county commissioners refused to make the appropriation. The Federal Relief agencies became tremendously interested in the problem of under nutrition, but they too neglected to provide funds for medical service. The doctors were invited to coöperate without compensation. I am asking the Woman's Auxiliary to undertake the problem.

In our institutions of higher education there are splendid opportunities for the cultivation among prospective leaders of public opinion of an active, intelligent interest in health conservation and a sane attitude towards medicine and medical practice, "opportunities" which for the most part are being neglected. I feel that it is becoming more and more imperative that the viewpoint of the medical profession should be promulgated among educated people if we are to escape vicious criticism and unreasonable demands from the masses.

Our penal institutions, from criminal court to the penitentiary, present tremendous medical problems of great importance to society. The study of criminology points definitely to the conviction that all of our penal institutions should be under medical guidance and supervision. Certainly the criminal courts must be greatly embarrassed in an effort to mete out even-handed justice in the absence of sound medical advice. At the request of Mr. Albert Coates, Director of the Institute of Government, a committee of which Dr. J. M. Parrott is chairman, was appointed to meet with a committee of the Bar Association to study this problem, but so far as I am informed the committee has never met. It must be obvious to any thoughtful person that our set-up for handling criminals needs a thorough going reorganization.

State Hospitals: The state has a large investment in hospitals for the tubercular, the mentally sick and the physically handicapped, all of which are primarily medical institutions, and on this account should command the active interest and coöperation of the medical profession and of this Society. Each of these institutions has its own board of directors and medical staff, but there is room for a plan by which their activities may be coördinated with some improvement in their service. At the present moment they are all undermanned, over-crowded and distressingly in need of financial support. The Sanatorium for Tuberculosis is an inspiration. If any of you have never visited this institution let me suggest that you go over and see Dr. McCain and his staff at

work. In so far as funds and facilities permit, the tuberculosis problem in North Carolina is being worked out. The medical profession should demand more liberal support for this institution, and I suggest it set about now to see to it that the next legislature makes adequate provision for this work. Dr. McCain himself is doing the work of three men. It is a tragedy that he is not relieved of much of the less important detail.

A large proportion of the patients in the state hospitals for the insane are incurable and require custodial care only. I do not presume to say what should be done, but the effect of an overwhelming number of incurable patients on medical initiative is deadening, and I wonder if it would not be wise to segregate the incurables in the present institutions and build a modern hospital for the acute and probably curable patients. I had expected Dr. Ashby to give the Society the benefit of his experience and judgment on this problem, but he was unable to give the time to it. The care of the mentally sick is a medical problem and these institutions should not be left to be the plaything of the politicians.

Industrial Medicine: The prevention of occupational diseases and injuries incident to the industrial development of the state and the medical care of the three hundred or more thousand employed in the various industries are becoming highly important medical problems. The daily wage of a large proportion of the employees in all industries is very close to the actual cost of living, and does not provide for medical care. The state recognizes the principle that industry should bear the cost of its hazards in terms of human life, and has set up the legal machinery by which medical care of the injured employee is provided. The Workmen's Compensation Law prescribes the compensation to be paid the injured employee for loss of wages, but leaves the compensation to be paid for medical care to the discretion of the industrial commission, directing that it shall be paid for, not wholly on its character and extent, but on the basis of the weekly wage. A mangled hand of an employee receiving $15 a week must have the same medical care as the mangled hand of an employee receiving fifty dollars a week, but the compensation for the service must be paid for on a basis of the "standard of living" which is determined by the weekly wage. The law therefore assumes the physicians, surgeons and hospitals will share liberally in the hazards of industry.

The law also provides, in its original form, that if the physician or surgeon does not give the mangled hand of the employee receiving fifteen dollars a week the proper medical care (as may be reasonably expected in the judgment of the industrial commission), the physician or surgeon, not the employer or the commission, is liable in damages for malpractice. Recently in the case of Hoover vs. the Globe Indemnity Co. (202 N. C. Reports 655) the Supreme Court has apparently ruled that an injured employee working under the provisions of the Act is debarred from recovery in a damage suit for malpractice. Whether this is the intention of the court or not, the industrial commission has so construed it.

The Workmen's Compensation Law, at it is written, recognizes, by implication at least, the rights of the employers and employees in the constitution of the industrial commission. One of its members declares himself the representative of labor and another signs himself officially the employer representative and the chairman "shall not be one who, on account of his previous vocation, employment, or affiliations, can be classed either as representative of employers or representative of employees." Whether the law debars a representative of the medical profession or not, it is so construed. In consequence of this interpretation, the authority to decide whether any medical service is required by the injured employee, the character and duration of the medical service and the compensation therefor is given to a group of men who have had no technical training or experience in the practice of medicine or surgery. The act throttles the physicians and is manifestly unfair.

This anomalous provision is largely responsible for the misunderstandings and dissatisfaction existing between the medical profession and the industrial commission. The remedy seems so simple and reasonable that it is surprising that it was not employed in the beginning. On behalf of the Medical Society the following proposition was made last August to the industrial commission:

1. The Medical Society agrees to appoint a committee of five of its members to confer with the industrial commission on matters pertaining to the administration of the Workmen's Compensation Act as it relates to the compensation of physicians, surgeons and hospitals for medical, surgical and hospital service coming within the purview of the Act.

2. It is understood that this committee will function under the Act in an advisory capacity, and the expenses attached to its service will be borne by the State Medical Society.

3. It is assumed that the committee will undertake to:

(a) Revise the schedule of fees, if in its judgment revision should be desirable, and recommend the same to the commission.

(b) Study the procedure of the commission in adjusting the claims of physicians, surgeons and hospitals for medical, surgical and hospital care, and recommend such changes as in its judgment will be fair to all parties concerned.

(c) To review with the commission all bills rendered by physicians, surgeons and hospitals which may be in dispute, and recommend to the commission a fair basis of settlement.

(d) To sit with the commission, upon request, in determining the extent of the disability of the employee resulting from the injury and recommend to the commission what, in its judgment, would be a fair compensation in terms of the Act, or in any other medical or surgical matters upon which the commimssion desires advice.

4. It is understood that final decision rests under the Act with the commission.

5. It is assumed that the recommendations of the committee will represent the best judgment of the medical profession of the State of North Carolina, and will be accepted as such.

This offer was refused by Maj. Allen, chairman of the commission, objections being made particularly to items a, b, c, and d. In other words he refused to consider any suggestions concerning the present procedures in adjusting bills for professional service, the schedule of fees, or in the present method of adjusting the claims of injured employees. In other words the commission did not want nor did it need any expert medical advice in the administration of the Workmen's Compensation Act. I feel very definitely that unless some changes can be made in the present system of adjusting claims for medical service and of at least clarifying the fee schedule, very little can be accomplished. The statement that the fee schedule is the maximum may be written in italics or in any one or all of the colors of the rainbow, it will not be seen by the medical profession.

About a month ago negotiations were re-opened with a prospect that something might be accomplished. Acting on a motion passed at the last meeting of the House of Delegates in Raleigh, a committee of which Dr. Haywood is chairman, was appointed to take hold of further negotiations. Dr. Haywood will make his report later.

I wish to apologize for giving this committee so little time to work on the problem but up to a little while ago it was absolutely hopeless.

There was one other matter that I thought the House of Delegates might take some action on, and that is the bill offered in the Congress some two years ago I believe by Mr. Tugwell, and it was known for a time as the Tugwell Bill, which was an amendment to the Pure Food and Drug Act. The intent of the bill was to require medicines offered to the public to live up to the label, and I feel that that movement is in the right direction and should be endorsed by the Medical Society.

I am sorry that I have kept you so long. (Applause)

We will now have the Secretary's report.

. . . Secretary McBrayer presented his prepared report as follows. . . (Applause)

ANNUAL REPORT OF THE SECRETARY-TREASURER

The Secretary has endeavored to carry out the instructions of the Society, and to coöperate with the officers and committees of this Society. There has been a great deal of activity on the part of the aforementioned.

The President has devoted a large share of his time to the interests of the Society and had an expense on account of same running well up into the hundreds of dollars, exact amount unknown. The President-elect, the Vice-Presidents, Secretary-Treasurer and Councillors have been subject to his call at any and all times. These as a whole constituting the Executive Committee have held two meetings and have otherwise functioned efficiently and capably. Most of these committees will report direct to the House of Delegates and in an endeavor to make this report brief, will not be mentioned here.

The Finance Committee has had the books of the Secretary-Treasurer audited and will present that report at the proper time and for that reason will not be a part of this report. This committee has given much thought and study to the fiscal operations of the Society, including the setting up of a budget. It is perhaps wise to call your attention to the fact that at the end of the fiscal year December 31st a deficit of something more than $300 was shown.

The F. E. R. A.

You are all familiar with the details of this as you contacted them in your own county, but most of you probably have little idea as to the part played by your officers in arranging the matter, working from New York City, Washington, D. C., and at Raleigh. You probably ought to know that your President, President-elect and Secretary, forming the committee, refused to accept the fees because we felt they were in the main too low, but we did tell our State Administrator that we would promulgate whatever fees she found were the best the District Administrator would agree to, which was done.

The State Administrator gave your Secretary the privilege of writing the County Administrators requesting a statement of amount paid physicians in said county for fees and mileage. Only 60 have furnished this information, but these figures indicate that the doctors have received $115,311.19 for this work for a three months period. This would be $192,187 for the 100 counties and for twelve months it would be three quarters of a million dollars.

There is, however, a much more important thing than the actual dollars received, to-wit, the principle is established and accepted by the U. S. Government, that a doctor should be paid, at least in part, for the treatment of charity cases. It is hoped that each county society will make a strong and united effort to secure the acceptance of this principle by the county and city government in each and every county and city of the state and follow through in securing a concrete application of this principle. Another very important fact has been established, and that is that every county society in the state can agree on one specific thing and then work it. When such an unanimous agreement is had we will always succeed.

The State Medical Society has recently been requested to act with other organizations in doing two things, (1) preparing an improved curriculum for our public schools, (2) preparing a program for adult education and a roster of teachers and speakers that will put said things into effect. These things are in the making at this time.

The clerical work of the office has shown an increase over previous year, as it has been doing these last several years. We were slowed down for a number of days on account of a fire which went through the offices, but it is a pleasure to note that all the important records of the office were saved unharmed. In an effort to economize and on the approval of the President, a number of letters and other information of importance and great value to every member of our profession, were sent to the secretaries

of the county medical societies. It was presumed that they would recognize the importance of calling a meeting of the Society, at which the members would be informed as to contents, and most of them did, but from reports and requests coming to me it was evident that a few of them did not.

The medical profession in the state is in better condition financially and otherwise than it was a year ago—some 300 more are in good standing at this time than a year ago, for all of which we are glad.

Each day and year it becomes more apparent that if the medical profession do not present a solid front and a cohesiveness not heretofore usually observed and assume the leadership in things medical that rightly belongs to them, the laity or the government will be telling us what and when and how to do things, and when that day arrives, and any one who cares enough about it to look can see it in the offing, it will be too bad, also too late for the medical man.

Respectfully submitted,

L. B. McBrayer,
Secretary-Treasurer.

President Manning: In the usual order of business the time has arrived for the selection of a nominating committee. As I understand it, the practice of the Society is that one delegate should be on the nominating committee from each district, and that delegate is to be selected by the delegates from the county districts.

Dr. O. C. Daniels (Oriental): Mr. President, for a good many years I have attended the North Carolina Medical Society, and I have heard a good many addresses by our various presidents in that time, and I want to congratulate our President of the Medical Society on this address that he made, and I want to move, sir, that a committee of five be appointed to act on this annual report to the Society.

. . . The motion was seconded by several members. . .

Secretary McBrayer: You have heard the motion, gentlemen. If there are no remarks, as many as favor the motion say "Aye"; as many opposed say "No." The ayes have it, and the motion is carried.

Dr. McCain, the president-elect, will please appoint that committee and hand the names in.

If the delegates from the various districts will select a corner or place in which to meet and select their member on the Nominating Committee, I imagine we will be in recess for three minutes. Please be as quick as possible.

. . . Recess for selection of Nominating Committee. . .

President Manning: The House of Delegates will please come to order. I will ask the Secretary to read the names of the Nominating Committee.

Secretary McBrayer: First District, C. B. Williams; Second, K. P. B. Bonner; Third District, W. Houston Moore; Fourth District, B. C. Willis; Fifth District, J. F. Highsmith; Sixth District, John B.

Wright; Seventh District, L. A. Crowell; Eighth District, H. B. Hiatt; Ninth District, Ross S. McElwee; Tenth District, Julian A. Moore.

Dr. McCain announces the following committee on the President's address:

N. C. Daniel, Julian A. Moore, J. F. Robertson, J. R. Terry, Robert F. Leinbach. Doctor Daniel is chairman.

President Manning: I am going to ask now that the Committee on Finance, of which Dr. W. M. Coppridge is chairman, make its report.

REPORT OF THE AUDITOR

Mr. J. Beverly Redford, C.P.A.
Durham, N. C.

September 9, 1933.

Dr. I. H. Manning, President
Medical Society of the State of North Carolina
Chapel Hill, North Carolina
Dear Sir:

Pursuant to arrangements made with Dr. W. M. Coppridge, Chairman of your Finance Committee, and in accordance with a motion passed at the meeting of the Executive Committee held in Chapel Hill July 6, 1933, I have made an examination of the books kept by your Secretary-Treasurer, Dr. L. B. McBrayer, Southern Pines, North Carolina, for the current fiscal period, and have instructed him and his assistant on a simple plan to put into effect the budget plan adopted at this meeting.

I submit herewith my report consisting of two pages of comments and the following described statements:

Exhibit "A"
Receipts and Disbursements
April 15, 1933, to August 31, 1933

Exhibit "B"
Budget Comparison—1933

Yours truly,

J. Beverly Redford,
Certified Public Accountant.

Comments on the Examination from April 15, 1933, to August 31, 1933

General

Membership in the State Society is contingent upon membership in the local county societies throughout the State. For that reason it is difficult to determine at any one time the membership for the incoming year. Then, too, according to the by-laws, failure of the county secretaries to collect and remit the per capita assessments for the year automatically suspends the member for that year; however, he can be reinstated in

any subsequent year merely by paying the current assessment to his county secretary and there is no charge for back assessments. While complete records are kept of the payments received, no charges made in a dues ledger and, for that reason there is no way to determine accurately the amount of revenue that can reasonably be expected from dues paying members.

Only in cases where the component Society is not functioning is an individual physician allowed to maintain his membership in the State Society and thus keep in good standing in the national organization.

Accurate accounts are kept of expenditures, and these are supported by paid checks and vouchers.

Cash Receipts and Disbursements

The cash receipts and disbursements for the period begun April 15, 1933, (the close of the last fiscal period) and ended August 31, 1933, are shown in Exhibit "A" of this report. The disbursements have been classified to agree with the budget classifications adopted at the meeting of the Executive Committee on July 6, 1933. Attention is called to the fact that while the change in the fiscal year makes the present period only eight and one-half months long, some of the expenses appropriated are for twelve months. Expenses covering the printing and distribution of transactions, apparently the heaviest expense of the Society, all fell within this period. With the exception of a balance of approximately $895.00 due Christian Printing Company (which, apparently, is subject to slight adjustment) the entire expenses incident to this publication have been paid.

In compiling this statement no account is taken of the funds now held by the Page Trust Company which has been closed since the bank holiday last March. This matter is of record in your Transactions for the last assembly.

Budget Comparison

For your information, and also as a guide for the Secretary-Treasurer, there has been prepared and submitted herewith a comparison of the budget as adopted with the actual expenditures made since the close of the last fiscal period.

As will be seen from this statement certain expenditures—such as the memorial tablet for Dr. Clarence A. Shore—authorized at the annual meeting in April were not considered. In addition no provisions were made for floral designs for deceased members nor for federal tax on checks.

Upon the adoption of the budget for 1933, a similar budget was adopted for the calendar year 1934. As the budget plan for the Society is new, it might be well to amend the budget before January 1, 1934, in the light of the experience of this period. A tentative budget could be prepared prior to January 1, and the final budget, giving effect to any commitments made by the Society could be adopted immediately after the annual meeting in April.

As a further suggestion it would be well to have your Secretary-Treasurer to make his financial report on the basis of the fiscal year instead of carrying his accounts open until the eve of the Assembly. This would enable you to have his accounts properly audited, and the audit report submitted to the Assembly. A certificate from the auditor could then be incorporated in the Transactions of the Society for that year.

Your attention is directed to the appropriations made to defray the expenses of your Legislative Committee. This committee will have little to do between the meetings of the General Assembly, and, during the years when there is no General Assembly, it might be well to appropriate funds only sufficient to care for such expenses that may be incurred incident to national legislation. Heavier appropriations can be made during legislative years. This is called to your attention due to the fact that Dr. McBrayer said that it was the opinion of some of your members that the appropriations would be cumulative. The drafting of a budget, however, does not constitute the creation of a fund and if it is the desire of your Executive Committee to create such a fund, a percentage of the annual dues could be set aside for that purpose. It might be well to create an emergency fund, which could be used for this or any other purpose, with any dividends distributed by the Page Trust Company.

Budgets are adopted as a measure to limit expenditures during a fiscal period and any unexpended appropriation at the close of a fiscal period is generally forgotten. It does not become an additional appropriation for the new fiscal period.

In addition to examining the financial transactions for the current fiscal period, I also examined the transactions for the period from 1931 to 1933. All funds of the Society appear to be properly accounted for.

Exhibit "A"

Medical Society of the State of North Carolina

Dr. L. B. McBrayer, *Secretary-Treasurer*

Receipts and Disbursements

April 15, 1933, to August 31, 1933

Balance on Deposit, April 15, 1933			$2,765.91
RECEIPTS			
Dues	$2,622.58		
Less Return Checks, Refunds, etc.	683.10	$1,939.48	$
American Medical Association		1.90	
Total Receipts			1,941.38
Total			$4,707.29

DISBURSEMENTS

SECRETARY'S OFFICE:		
Secretary's Salary	$ 200.00	$
Clerical Salary	540.00	
Stationery and supplies	85.91	
Rent, light, and water	40.00	
Travel expense	186.41	
Freight and express	1.72	
Postage, telephone, and telegraph	83.47	
Miscellaneous	41.50	
TRANSACTIONS:		
Printing, binding, mailing	1,073.13	
Reporting	358.97	
Preparation of copy	100.15	
EXECUTIVE COMMITTEE:		
Travel, etc.	216.61	
OTHER COMMITTEE:		
Travel, etc.	43.68	
LEGISLATIVE COMMITTEE:		
Travel, etc.	160.00	
OTHER ITEMS:		
Shore Memorial Tablet and Photograph	98.85	
Floral Designs—Funeral	17.00	
Federal Check Tax	1.58	
Total Disbursements		3,248.98
BALANCE ON DEPOSIT, AUGUST 31, 1933		$1,458.31

RECONCILEMENT OF ACCOUNT WITH THE CITIZENS BANK AND TRUST COMPANY, SOUTHERN PINES, N. C.

Balance as shown by Bank's statement August 31, 1933		$1,507.89
Outstanding checks:		
5	$ 5.00	
7	25.50	
11	9.00	
97	10.08	
		49.58
BALANCE AS ABOVE		$1,458.31

Exhibit "B"
Budget Comparison for the Year 1933
(Budget Adopted July 6, 1933)

Expenditures, April 15 to August 31, 1933

	Budget Comparison Appropriated	Expended	Under Over Expended
Chairmen of Sections:			
Stationery	$ 10.00	$	$ 10.00
Traveling	300.00		300.00
Councilors:			
Stationery	10.00		10.00
Traveling	250.00		250.00
Executive Committee:			
Traveling, etc.	500.00	216.61	283.39
Other Committees:			
Traveling, etc.	300.00	43.68	256.32
Legislative Committee:			
Traveling, etc.	500.00	160.00	340.00
President's Office:			
Stationery	10.00		10.00
Postage, telephone, and telegraph	15.00		15.00
Traveling	200.00		200.00
Secretary's Office:			
Secretary's Salary	1,000.00	200.00	800.00
Clerical assistance	1,000.00	540.00	460.00
Stationery and supplies	100.00	85.91	14.09
Rent, light, and water	300.00	40.00	260.00
Traveling	250.00	186.41	63.59
Freight and express	10.00	1.72	8.28
Postage, telephone, and telegraph	100.00	83.47	16.53
Miscellaneous	150.00	41.50	108.50
State Meetings:			
Guest Speakers	200.00		200.00
Miscellaneous	50.00		50.00
Transactions:			
Printing, binding, and mailing	2,000.00	1,073.13	926.87*
Reporting	800.00	358.97	441.03
Preparation of Copy	150.00	100.15	49.85
Miscellaneous	50.00		50.00
Items Not Provided For:			
Shore Memorial Tablet		98.85	**98.85**
Floral Designs—Deceased Members		17.00	**17.00**
Federal Check Tax		1.58	**1.58**
Totals	$8,255.00	$3,248.98	$5,006.02

* Note: At the time of examination the Society owed a balance of approximately $895.00 on the printing bills of its transactions for 1933.

Dr. I. H. Manning, President
Medical Society of the State of North Carolina
Chapel Hill, North Carolina
Dear Sir:

I have made an examination of the books kept by your Secretary-Treasurer, Dr. L. B. McBrayer, Southern Pines, North Carolina, for the period from September 1, 1933, to December 31, 1933, thus completing the examination for the period from April 15, 1933, for the balance of the calendar year; and, as a result of this examination, I have prepared, and submit herewith my report consisting of one page of comments and the following described statements.

Exhibit "A"
Receipts and Disbursements
April 15, 1933, to December 31, 1933
Schedule 1—Dues by Medical Societies from September 1 to December 31, 1933

Exhibit "B"
Budget Comparison—1933

As the result of this examination it is my opinion that the receipts of the Society, as shown by the records, for the period under review have been properly accounted for.

Yours truly
J. Beverly Redford,
Certified Public Accountant.

Comments on the Examination for the Period from April 15 to December 31, 1933

General

The comments under the caption in the report of the examination dated September 9, 1933, will cover this period also.

Receipts and Disbursements

The statement of cash receipts and disbursements by periods and in total, for the period begun April 15, 1933, and ended December 31, 1933, are shown in Exhibit "A". For convenience the disbursements are shown in general budgetary classifications, the several objects under each classification being shown in the budget classification (Exhibit "B").

The monthly statements submitted by the bank were compared with the records of receipts as shown by the cash book and found to be in agreement therewith.

Checks paid by the bank were submitted as evidence of the disbursements and found to be in order.

At the bottom of Exhibit "A" there appears a list of accounts aggregating $345.80, representing unpaid bills that are to be provided for in the adoption of the 1934 budget.

A schedule of dues received between September 1 and December 31, 1933, by medical societies, is shown as Schedule No. 1 of this Exhibit. Due to the unsettled banking conditions during the early part of 1933, several checks were returned and, for that reason, a similar statement was not prepared for that period.

No account has been made in this statement for funds in the Page Trust Company and it does not appear that any dividends have been received from that company.

Budget Comparison

The amounts expended compared with appropriations made are shown as Exhibit "B". Few of the items are over expended but, as a whole, the Society has lived well within the budget estimates. Attention is called to the fact that expenditures authorized by the Society or the Executive Committee aggregating $178.71 were not provided for upon the adoption of the budget.

On adoption of the budget for the year 1934, if the committee should desire to adopt a new budget, provisions should be made for such items. If it is the desire to use the tentative budget adopted for 1934, I would suggest that the budget be amended to incorporate the liabilities already incurred during 1933.

The comments and suggestions made in the previous audit report are again called to your attention at this time.

EXHIBIT "A"

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA
DR. L. B. MCBRAYER, *Secretary-Treasurer*

RECEIPTS AND DISBURSEMENTS
April 15 to December 31, 1933

		PERIOD	
	Total	*Sept. 1, to Dec. 31, 1933*	*Apr. 15 to Aug. 31, 1933*
ON DEPOSIT—BEGINNING OF PERIOD	$2,765.91	$1,458.31	$2,765.91
RECEIPTS			
DUES—Schedule No. 1	$3,000.58	$ 378.00	$2,622.58
OUTSTANDING CHECKS CHARGED BACK	39.50	39.50	
SALE OF TRANSACTIONS	5.00	5.00	
AMERICAN MEDICAL ASSOCIATION	1.90		1.90
Total	$3,046.98	$ 422.50	$2,624.48
LESS: RETURN CHECKS, REFUNDS, ETC.	685.10	2.00	683.10
Net Receipts	$2,361.88	$ 420.50	$1,941.38
Total	$5,127.79	$1,878.81	$4,707.29

DISBURSEMENTS

Councilors	$ 37.03	$ 37.03	$
Executive Committee	216.61		216.61
Other Committees	153.61	109.93	43.68
Secretary's Office	1,897.21	718.20	1,179.01
Transactions	2,425.75	893.50	1,532.25
Legislative Committee	160.00		160.00
Other Items:			
Shore Memorial tablet and photograph	98.85		98.85
Audit	60.50	60.50	
Floral designs—funerals	17.00		17.00
Federal check tax	2.36	.78	1.58
Total	$5,068.92	$1,819.94	$3,248.98
Balance—End of Period	$ 58.87	$ 58.87	$1,458.31
Items to be Provided For:			
Christian Printing Company, Balance—1933 transactions		$ 99.85	
Storr Engraving Co., Stationery		39.30	
Dr. L. B. McBrayer—Salary—Sept., Oct., Nov., Dec., 1933		200.00	
Thomas-Quickel Co., Inc.		6.65	
Total		$ 345.80	

Exhibit "A"—Schedule No. 1

Medical Society of the State of North Carolina
Dr. L. B. McBrayer, *Secretary-Treasurer*

Dues Collected
September 1 to December 31, 1933

Society	*Amount*
Brunswick	$ 5.00
Buncombe	60.00
Craven	5.00
Cleveland	3.00
Catawba	5.00
Durham-Orange	15.00
Edgecombe-Nash	25.00
Forsythe	30.00
Franklin	5.00
Guilford	35.00
Gaston	20.00
Greene	5.00
Hyde	5.00
Halifax	5.00
Mecklenburg	5.00
Northampton	15.00
Pitt	10.00
Person	30.00
Randolph	5.00
Stanly	15.00

Swain	15.00
Vance	5.00
Washington	5.00
Winston-Salem	5.00
Wilson	5.00
Yancey	30.00
Yadkin	10.00
Total	$ 378.00

Exhibit "B"

Medical Society of the State of North Carolina
Dr. L. B. McBrayer, *Secretary-Treasurer*

Expenditures and Budget Comparison
April 15 to December 31, 1933

	Expended	*Appropriated*	*Under* **Over** *Expended*
Chairmen of Sections:			
Stationery	$	$ 10.00	$ 10.00
Traveling		300.00	300.00
Councilors:			
Stationery		10.00	10.00
Traveling	37.03	250,00	212.97
Executive Committee:			
Traveling, etc.	216.61	500.00	283.39
Other Committees:			
Traveling, etc.	153.61	300.00	146.39
Legislative Committee:			
Traveling, etc.	160.00	500.00	340.00
President's Office:			
Stationery		10.00	10.00
Postage, telephone, telegraph		15.00	15.00
Traveling		200.00	200.00
Secretary's Office:			
Secretary's salary	200.00	1,000.00	800.00
Clerical assistant	905.00	1,000.00	95.00
Stationery and supplies	107.66	100.00	**7.66**
Rent, light, and water	120.00	300.00	180.00
Traveling	378.38	250.00	**128.38**
Freight and express	2.14	10.00	7.86
Postage, telephone, telegraph	142.53	100.00	**42.53**
Miscellaneous	41.50	150.00	108.50
State Meeting:			
Guest speakers		200.00	200.00
Miscelaneous		50.00	50.00
Transactions:			
Printing, binding, mailing	1,966.63	2,000.00	33.37
Reporting	358.97	800.00	441.03
Preparation of copy	100.15	150.00	49.85
Miscellaneous		50.00	50.00

ITEMS NOT PROVIDED FOR:			
Shore Memorial	98.85		98.85
Audit	60.50		60.50
Floral design—funeral	17.00		17.00
Federal check tax	2.36		2.36
Totals	$5,068.92	$8,255.00	$3,186.08

. . . Dr. Coppridge read his prepared report.

The report that I have here is made up to the first of January, 1934, and since we are changing from the fiscal year of April to April to the annual basis of January to January, the report might not be very clear; in fact, it is hard to get a good idea of just what the income and expenditures are from this report for that reason. I wanted to go over the budget briefly and let you know what the Finance Committee and the Executive Committee have decided would be an ideal budget for the Society.

It is recommended that the following classifications be made of expenditures and the following amounts appropriated: For the chairmen of sections of the State Society the item of stationery and traveling expense amounting to $10 be appropriated; then for the councilors' traveling expense $250, that is the traveling around in their own territory visiting the various societies during the year, for the ten councilors a traveling expense of $250, and $10 stationery, making a total of $260.

Then for the Executive Committee, which usually has two meetings a year, and which includes all the councilors and the other officers of the Society, traveling expenses $500 for the Executive Committee; and for other committees, such as have been mentioned by Dr. Manning here tonight, that we appropriate $300 for the use of miscellaneous committees.

Then the Legislative Committee has been spending anywhere from $100, to $200, or $300. It is recommended that they be allowed $500 a year in their work, which usually occurs at the time of the legislative meetings.

The President's office has never been appropriated any expense money. In recent years the Presidents have been doing a lot of traveling. Dr. Wright, as you know, went all over the state a number of times. Dr. Manning has done a tremendous amount of traveling this year, all at his own expense. Telephones, stationery, postage, and all that have been borne by the President, which we think should not be the case. We tried to appropriate there for the President's office $250, which will not cover I am sure the expense that Dr. Manning has had last year or Dr. Wright the year before.

Then the expenses of the Secretary's office are more or less fixed. The Secretary's salary, clerical assistance, stationery and supplies, rent, light, traveling of the Secretary, postage and miscellaneous. The Secretary's salary $1000, clerical assistance $1000, stationery and supplies $500, rent, light and water $300, traveling $250, freight and express $10, postage,

telephone and telegraph $100, and miscellaneous expenses of the Secretary's office $150.

Then the expense of state meetings, expenses of guest speakers and miscellaneous, we feel we should have as much as $250 available.

Then in the printing of the Transactions, this year it is costing something in excess of $1900. We have put that in the budget at $2000; reporting at $800; preparation of copy and miscellaneous expense in connection with the Transactions $200 additional, so that total amounts to $8255.

This year, up until a week ago when I got these figures from the Secretary, he has collected to date, 1934, $5590 from 1118 members. He thinks that additional funds that will come in during the year will probably increase the income up to around $6500, which would leave, if we followed the budget which has been recommended, a deficit of about $1800.

The President, Secretary and Finance Committee have studied the appropriations and feel like they are more or less a minimum, and if we are going to have any of these additional committees, which I am sure most of us think are important, such committees as this one that is to function with the Industrial Commission, the Committee on Pre-Natal Care, and Cancer Committee, there are no funds whatever available to carry on that work. I think most of those that I have spoken to feel that $500 is too little for legislative work. With all these things in mind, while I am not including it in the report, I feel that we have got to look forward to an increase in dues if we carry on the work of the Society as most of us would like it to be carried on.

The President and Secretary have done a tremendous amount of work this last year. In the Secretary's report, which he will give you a little later, he will show you how organized medicine in this state has turned things so that the doctors have been able to increase their income a great deal through the organized efforts of the State Society, and if we are going to carry on this work I feel that certainly in the near future, I don't know how long, we will have to look forward to an increase in dues so that we can carry on the work as it should be done. (Applause)

President Manning: Is there any discussion of the report? We should like to hear from someone. Will you make a motion to approve it?

Dr. B. J. Lawrence (Raleigh): Mr. President, I would like to make a motion that we approve this, and that in so far as possible we endeavor to carry it out.

. . . The motion was seconded. . .

President Manning: The motion has been made and seconded that the report be approved. It is quite obvious that we are going to have to cut a good many items on that report to make it come within the income. Will you leave that to the Finance Committee?

Dr. B. J. Lawrence (Raleigh): Yes. It has been suggested over here that I include in that motion that the Committee be continued with power

to readjust it, together of course with the President and the Secretary-Treasurer.

President Manning: The motion has been made and seconded that the report be approved. Those in favor say "Aye"; opposed "No." The motion seems to have carried; the ayes have it.

A report was made this afternoon to a meeting of the Executive Committee on the prosecution of quacks. I will ask Dr. W. S. Rankin to make the report to this meeting.

Dr. Watson S. Rankin (Charlotte): Mr. Chairman and Gentlemen of the House of Delegates: I have the privilege of bringing to the attention of the Executive Committee this evening certain facts in regard to the exposure of a person who visited Charlotte some years ago and made rather extravagant and apparently fraudulent claims in regard to ability to help disease, training and associations, and I will simply repeat, Mr. President, what I said this afternoon, to the House of Delegates in regard to the matter. The following facts seems to be established and are apparently unquestioned.

In June 1926 Dr. Northington made a report to the North Carolina Society in regard to a visit of a certain person to Charlotte who made extravagant and questionable claims with respect to the healing of disease and in regard to her training and associations. That is fact number one. That is covered in the minutes of the State Medical Society.

Fact number two is that the State Medical Society on that statement of Dr. Northington appointed a committee with power to act, with Dr. Northington, in taking action as the Committee and Dr. Northington deemed advisable in regard to this particular person. That does not seem to be questioned, and that is covered by the minutes of the Society.

The third fact that I called attention to is that Dr. Northington conferred with the committee appointed by the Society, and the committee authorized Dr. Northington to prepare an editorial statement in line with his statement to the Society on June 14 to 16, for publication in *Southern Medicine and Surgery,* and to take such other action as he saw fit in exposing what appeared to be the extravagant and fraudulent claims of the person referred to in Dr. Northington's statement to the Society.

The fourth fact is that such statement was prepared and published as an editorial in *Southern Medicine and Surgery* July 26, 1926, and on that editorial suit was brought and a judgment against Dr. Northington in the sum of $3000 was ordered. The matter was finally carried to the Supreme Court, and they affirmed the findings and the judgment of the lower court.

The fifth fact, since this judgment was ordered, settlement has been made and the case finally closed by the payment of the sum of $350. In addition the sum of $350 to $375 has been expended in the litigation, the attorney for the defendant, Mr. B. S. Whiting, having contributed his services gratis.

Number six, Dr. Northington, recognizing the liability of the State Society in the event of its action in the premises becoming known during the litigation, avoided any reference to the action of the Society, this preventing the Society's being made a party to the suit and involved in a financial liability, which probably would have been much in excess of what was imposed upon the individual.

Seventh, if the Society had been made a party to the suit, it is very unlikely that any compromise would have been effected in the settlement, and there probably would have been a much larger judgment.

Those briefly, gentlemen, are the facts leading up to the matter that your Chairman has now called before you. It seems pretty clear to me in examining the records of the court and going over the minutes of the Society that the Society in appointing a committee to act with Dr. Northington in taking such action against these particular apparently fraudulent claims of this particular person became responsible for what happened. I assume that if the editorial prepared by Dr. Northington had been questioned by the Committee representing the Society, the editorial would not have appeared certainly in the form in which it was carried in *Southern Medicine and Surgery,* and I am certainly making a report to you now of these facts, which report I made this afternoon to the Executive Committee, and I suppose now, Mr. Chairman, I am bringing the matter from the Executive Committee to the House of Delegates for final action.

Secretary McBrayer: After having heard this statement by Dr. Rankin and another statement by Dr. John Q. Myers, that the committee so appointed to confer with Dr. Northington had acted and conferred with him, and advised him to go ahead, etc., and after looking into the minutes of that meeting and various other meetings, the Executive Committee passed the following motion:

"On motion of Councillor A. B. Holmes, that the Executive Committee accept the report, and recommend that the matter be referred to the House of Delegates, with the further recommendation that Dr. Northington be reimbursed to the amount of $700, which was carried."

President Manning: The action is a recommendation from the Executive Committee to the House of Delegates, gentlemen. What will you do with it?

Dr. Verne S. Caviness (Raleigh): Before any vote is taken on that I would like to hear read before this body the opinion of our Supreme Court in affirming that decision.

Secretary McBrayer: It will take all night. (Laughter)

Dr. Caviness: Mr. President, I will say this then.

I have read a good part of that opinion of the Supreme Court and I gathered from that that it was not the editorial which was printed in *Southern Medicine and Surgery* but it was the disposition of it. Our State Supreme Court held, according to the report I read, that there was

some maliciousness involved in mailing copies of the editorial to various towns or schools in the state which this woman was likely to visit and I don't think that the Medical Society is liable for that action. Our treasury is overdrawn anyway and I don't think we ought to be liable for that amount.

Dr. J. M. Northington (Charlotte): Mr. President, may I make a statement?

I would like to say that the action in distributing the things that have been mentioned was approved by the committee appointed by you.

. . . Report on this subject from Executive Committee. . .

Secretary McBrayer: At the meeting of Executive Committee this afternoon on motion it was voted that Dr. Northington should be reimbursed to the amount of $700, and that the matter be referred to the House of Delegates, with the further recommendation that Dr. Northington be reimbursed to the amount of $700, which was carried.

President Manning: Is there any further discussion?

Dr. G. L. Carrington (Burlington): It seems to me that the matter properly hinges upon the question as to whether the members of the Committee from this Society requested the editorial be sent to these various places. I should like to know about that.

President Manning: Dr. Meyers was Chairman of that committee.

Dr. John Q. Myers (Charlotte): Mr. President, I will say for the benefit of those present, the committee had a meeting, and after much consideration advised Dr. Northington to proceed as he saw best in order to stop the workings of this particular woman, Dr. Stevenson, in the state as had been advised by the Society. I was Chairman of the Committee at the time, acting in conjunction with Dr. J. P. Monroe, also Dr. A. M. Whisnant, and we all advised that Dr. Northington could handle it better without our constant following it up, and we tendered him as we thought carté blanché to stop her, and he apparently did.

President Manning: Is there any further discussion?

Dr. Ben F. Royal (Morehead City): It seems to me that as the result of certain activities of certain individuals, this Society appointed a committee, Dr. Northington being one member of that committee, and definitely instructed him to proceed to accomplish a certain act in any way he saw fit. He had the advice of the committee, which admits having advised him to act as he did, or at any rate giving him authority to proceed under his own discretion. As a result of a direct mandate from this Society this man has acted. When he acted, whether wisely or unwisely, he was acting as your agent and mine, and the result of his action started this suit, which assessed a certain amount of damages, after which a compromise was obtained. It would seem to me that we are in honor bound, whether legally or otherwise, to reimburse this man for the amount of money, time, and as far as we can for the anxiety he has gone through

during the process of this suit, and I second the motion that has been made that he be reimbursed.

President Manning: Is there any further discussion? Are you ready for the question?

Dr. Watson S. Rankin (Charlotte): Mr. Chairman, I understand now that the House of Delegates is acting upon the report of the Executive Committee of this House, with a recommendation that Dr. Northington be reimbursed for the expenses incurred in this litigation; that that is the matter now before the House: a recommendation of the Executive Committee to this House of Delegates that they order that Dr. Northington be reimbursed for the expenses incurred in this amount.

President Manning: That is my interpretation. Is there any further discussion?

Dr. T. W. M. Long (Roanoke Rapids): The amount is fixed at $700, is it not?

President Manning: Yes, sir, approximately. I say approximately because it is stated that the compromise was for $350 and the expenses were from $325 to $375. Dr. McBrayer says $700 was the amount recommended by the Executive Committee to be paid to Dr. Northington.

Is there any further discussion? If not, those in favor of this motion will please say "Aye"; opposed "No." The ayes seem to have it, and it is carried.

Dr. McBrayer will read another resolution that was offered in the meeting of the Executive Committee this afternoon.

Secretary McBrayer: Mr. Chairman: Dr. J. W. Davis, Councillor, Ninth District, moved that in the future no financial obligation be assumed by the Society for any committee unless authorized by the Executive Committee or the House of Delegates; that is, the expenditure of funds had first been authorized by the Executive Committee or House of Delegates, as provided in the Constitution and By-Laws.

President Manning: This comes to the House of Delegates for approval or disapproval as they see fit.

Dr. John Q. Myers (Charlotte): Mr. President, I move the adoption of that resolution.

. . . The motion was seconded by several members. . .

President Manning: Is there any discussion of the motion? Those who are in favor of this motion will say "Aye"; opposed "No." The ayes seem to have it, and the ayes have it.

I will ask at this time for a report of the Committee on Legislation by Dr. B. J. Lawrence, Chairman of this Committee.

Dr. B. J. Lawrence (Raleigh): Mr. President and Members of the House of Delegates, it is getting late, and there are some other very important matters to come before this body. The report is rather short, all typewritten, and will appear in the Transactions, and if there is no

objection, I would request permission to submit this as is, with the statement that the only thing I can think of that might be of benefit to the North Carolina State Medical Society that this House of Delegates could do now regarding the Legislative Committee and any Legislation that may come up at the next General Assembly is this: If we could, one and all, realize that here and now, and from this time hence, and until we can get the membership of this State Society aroused to the point where they are willing to make the sacrifice to leave their private practices and go into a political race if necessary—and it will be necessary—in short to run for the Legislature of North Carolina from your various counties, and help to make the laws that will govern the practice of medicine in North Carolina, we will not get very far.

Gentlemen, it is utterly hopeless, beyond expression, to attempt to carry legislation through a Legislature in favor of doctors when that Legislature is made up almost wholly of lawyers, who go there to make laws of lawyers, for lawyers, by lawyers, and for special interests who have their special interests, particularly well guarded. (Applause)

The time for filing, as I understand it, is about four or five days ahead of us. I think that is perhaps universal throughout the state. It is certainly so in my county. The deadline is, therefore, just ahead of us. Now there are many physicians active members of this House of Delegates and of this State Society who could easily be elected to North Carolina's General Assembly, if you would make up your minds to do it. I couldn't be elected. I don't think there are but two men in my county that could be elected to the Legislature of North Carolina. Some of my dearest friends there, the finest doctors in Wake County, wouldn't have a look-in to go into politics there. I think two of them perhaps might be elected. There are many counties in this state in which it would be easy, dead easy, to elect the leading physician in your county to the General Assembly, and I beg of you to give serious consideration to that. Let's get some doctors in the Legislature in order that they may be on the floor when the thing is presented. My friend and colleague, Dr. Long, has been there. I think he will bear testimony to the truth of my statement when I say that they almost laugh at us when we ask for legislation in favor of doctors. (Applause)

President Manning: If there are no objections, the report that Dr. Lawrence has filed will be printed in the Transactions. This year has not been a legislative year, and fortunately the Committee has had a little rest, but the coming year will be a legislative year.

REPORT OF COMMITTEE ON LEGISLATION

Mr. President, Mr. Secretary, and the Members of the House of Delegates of the North Carolina State Medical Society:

Your Committee wishes to submit this brief report.

When we met one year ago tonight, the then famous 1933 Legislature was nearing its close. During these last few days we made a strenuous effort to obtain some measure of relief from the tyrannical action of some portions of the North Carolina Industrial Act. We were able to secure an amendment to that Act stating that an employee might secure a physician of his own choice. You perhaps are aware of the fact that any effort to amend or change that Industrial Act or any provision of it excites strenuous action from the members of the Industrial Commission themselves; and it invites the wrath of the Insurance Trust in this State. No one can make me believe that corporations and insurance companies would guard so carefully every detail about a matter that did not directly affect their special interest. I must confess that it is rather discouraging to endeavor to deal with a question knowing at the outset that the odds are overwhelmingly stacked against you. At this writing I have no way of knowing who will sit in the next General Assembly. That to us is a very important matter.

There has been no Legislature this year and therefore there is nothing of consequence by way of bills introduced to report. The writer would however, remind you that if we observe correctly the trend of things today, most legislation which touches or deals with the doctors at all is affecting them adversely.

I sincerely hope that the relationship between the public and the physician is growing sweeter and more harmonious. Perhaps the wish is father to the thought, because I see many evidences to the contrary. I wish from the bottom of my heart that some of the leaders of our profession would not have such a wide difference of opinion regarding the question of public policy and the relation of the public to the profession. The most striking national illustration of this is the contrary and almost contradictory views held by the majority and the minority report of the Committee on the Cost of Medical Care. There is much work to be done and it will cost money to do that work properly for the doctors of North Carolina. Some day we will wish that we had paid a respectably large annual dues and that we had a whole time Secretary with sufficient funds at his disposal to properly safeguard our interest. The most of us are so busy with our own private practice that we give very little consideration to the actual ways and means of accomplishing worthwhile legislation other than a casual consideration of the matter as we ride from one patient's house to another. That is a reflection upon the intelligence, the education and the training of this group.

The force of the pack is the combined strength of the individual making up the group. I hope from the bottom of my heart that the strong stalwart characters making up the backbone of the Medical Profession in North Carolina will come out of hiding and shake off their apparent lethargy and take the high road once again. We meet here once a year for a very brief few moments to consider the matters of vital importance to us as physicians. We come late and leave early. We come here as we live

at home in a rush and in a hurry. We scarcely have time to shake hands with one another before we are on our way back home again. We do not take time to exchange views and to consider seriously and carefully the methods which should be pursued to properly safeguard the interest of our profession. It would be a glorious day for the medical profession in North Carolina if we could send fifteen or twenty of the brightest, best trained, more energetic and gifted young men in our ranks to the Legislature in Raleigh. It would be better by far if we could send twenty of our more mature doctors of this State to the Legislature. I tell you men of this House of Delegates sent here by the various counties of this State to transact the business of this Society for the year, unless you are willing to come to Raleigh and sit in the Legislature and help make laws governing the practice of medicine in this State we need not grumble or complain if we feel the pinch of injustice born of ignorance, nurtured in the law of utter inconsideration on the part of the lawyers and business men. It is your duty as members of the profession to make an earnest effort to send a respectably large number of doctors to the next General Assembly of North Carolina. The time for filing is three or five days ahead of us. The dead line is very close by. If we do not make up our minds to file for election within the next few days we may as well understand here and now that there is little we can expect by way of legislative relief for the profession for another two years.

Respectfully submitted,

B. J. LAWRENCE, *Chairman.*

The next report I would like to have is the Committee on Cancer, of which Dr. Carpenter is Chairman.

. . . Dr. C. C. Carpenter presented the prepared report of the Cancer Committee as follows: (Applause)

REPORT OF THE COMMITTEE ON CANCER

Mr. President, Members of the House of Delegates:

I wish to call your attention to an outline of the proposed items to be accomplished by your Committee on Cancer for this year:

1. Approach the cancer problem in North Carolina through the medical profession, and that its activities should be carried on largely through the medical profession.

2. Determine in some way the prevalence of cancer in North Carolina, and that this can be done better along the plan used by the State Board of Health in their recent venereal disease survey.

(a) To arrange some time during the summer to have suspected growths examined for physicians free of charge for the survey.

(b) To set aside a specific time in which physicians will be asked to send to the laboratory biopsy specimens from a given number of suspected malignancy cases.

(c) To have statistical analysis, reports and other pertinent information mailed to the physician.

3. To make an appraisal on the facilities for the diagnosis and treatment of cancer used throughout the State.

4. To hold within the next few months a meeting where some outstanding man is present to give us a presentation on the subject of cancer.

5. To have presented at one meeting of each district medical society a special program on cancer.

6. To anticipate the establishment of cancer clinics in certain key localities in the State.

We are pleased to report that most of the phases of activity outlined in this report have been accomplished.

A good many of you attended the two-day Cancer Clinic held at Wake Forest on December 1st and 2nd, 1933, that was conducted by Doctors Joseph C. Bloodgood, of Baltimore, Chas. D. Lucas of Memorial Hospital, New York, and a Diagnostic Committee composed of Doctors B. C. Willis of Rocky Mount, F. R. Taylor of High Point, J. P. Rousseau of Winston-Salem, and Thomas H. Byrnes of Durham. This Clinic was attended by about two hundred physicians, representing every section of the State and a good many cases were seen and examined.

Data relative to the prevalence of cancer in North Carolina has been assembled. This is available for future use.

About two months ago the President of each of your county societies received a questionnaire from this Committee, the principal inquiry being relative to your society membership and the facilities in your county for the diagnosis and treatment of malignancy. Very few of these questionnaires have been returned. We hope that you will remind the President of your county society of this questionnaire and request that he return it properly filled out at his earliest convenience.

In addition to the State-wide Clinic and symposium given at Wake Forest, Dr. R. H. Hardin, of Banner Elk, in conjunction with the County Medical Society, has scheduled for June 4th and 5th a two-day Cancer Control Clinic. A nationally known authority on cancer is to conduct the clinic, and many members of this society appear on the program. An extensive exhibit on cancer in the form of wax models has been secured.

A symposium on Cancer of the Breast has been sent to every county medical society in the State. Special meetings for the presentation of this symposium have been held during the past three months in several counties. Meetings in other counties are scheduled. County societies are urged to communicate in the near future with your Chairman in order that he may properly route the film and slides.

Your Committee, in the light of the past year's experience in carrying out your five-year Cancer Control program, makes the following recommendations:

1. That the Committee membership be increased from three to five;

2. That the Committee consist of active interested physicians from different sections of the State in order that the representation may be equal throughout the State;

3. That the membership be so appointed that one new member will be appointed each year;

4. That the Cancer Committee be given authority to direct the activities of the Federation of Women's Clubs in their study of Cancer Control in the State, through the local county medical society.

5. That your Committee be allowed to follow the example of the cancer committees of various other Southern states in radio broadcasting and newspaper releases, with the approval of Committee on Public Relations.

During the coming year the American Society for the Control of Cancer will supply us with a symposium on Tumors of the Uterus, which will be as readily available as the symposium on Tumors of the Breast has been this year.

We have been pleased to note that the medical profession in this State is showing greater interest in cancer, and we believe that the time will soon come when the great number of patients with suspected lesions, will not be inclined to go outside of the State for diagnosis and treatment, as they have done in the past.

Your Committee does not feel that it will have done its duty unless it calls to your attention that very early cancer is curable, and your Committee desires to stimulate the laity, over thirty-five years of age, to consult their family physician for a periodic examination twice a year.

Respectfully submitted,

C. C. Carpenter, *Chairman*,
Paul F. Whitaker,
J. L. Adams.

President Manning: You have heard the report of the Committee on Cancer. What will you do with the report?

Dr. A. G. Brenizer, Jr., (Charlotte): Mr. President, I move you that we accept the report, and also thank Dr. Carpenter for the work that he has done this year, which I think is most excellent.

. . . The motion was seconded. . .

President Manning: Is there any discussion of the motion? Those who are in favor of the motion will say "Aye"; those opposed "No." The ayes have it. The motion is apparently passed.

I will ask Dr. Strosnider to make such a report as he can for the Committee on Schools.

Dr. Chas F. Strosnider (Goldsboro): Mr. President and Secretary, this committee has done considerable work in the past, worked up to actually doing the work in the schools, but finances stalled us at the time when we were ready to go to work. The plan is ready but the money is not, and we feel, and have felt, that the profession should not be called upon at this time for additional work without being compensated. However, the Committee has plans at the present time ready to be adopted and to be put into effect when the funds are available. (Applause)

President Manning: You have heard the report, gentlemen. What should be done with it?

. . . It was voted that the report of the School Committee be accepted. . .

Has the Chairman of the Advisory Committee to the Woman's Auxiliary, Dr. Reynolds, any report? Dr. Reynolds doesn't seem to be here.

The Committee on Public Relations, of which Dr. Wingate M. Johnson is Chairman!

. . . Dr. Johnson presented the prepared report of the Committee on Public Relations. . . (Applause)

President Manning: You have heard the report, gentlemen.

. . . The motion was made and seconded that the Committee's report be adopted. Motion carried. . .

REPORT OF CHAIRMAN OF PUBLIC RELATIONS COMMITTEE

Mr. President, and Members of the House of Delegates:

In giving an account of my stewardship as chairman of the Public Relations Committee, I will be as brief as is consistent with what, rightly or wrongly, I feel to be its importance. It was a great surprise last June when, at a meeting of the Executive Committee at Chapel Hill, Dr. Manning announced the creation of a Committee on Public Relations, of which I was to be chairman. I felt then and have felt more keenly since my unfitness for the job, but my respect and admiration for Dr. Manning kept me from declining it. With the passage of time I am more and more convinced that such a committee is of primary importance. The very fact that one of the chief articles of the physician's faith forbids his flirting

with "the Delilah of the press" makes our profession greatly misunderstood. It is hard to understand why it has taken so long to recognize the need of the Medical Society for an official mouthpiece.

From the very beginning, I felt that it would not do to appear too often in print, but that it was better to wait until we had a real need for publicity before asking for newspaper space. Our chief activity has been the controversy with the Industrial Commission. This is now an old story to most of you. A separate committee is to report on the relations of the medical profession with the Commission.

Of paramount importance in establishing proper relations with the public is the organization of local committees in each county society; for, after all, most of the need for publicly explaining the medical viewpoint comes up as local issues. Here I wish to emphasize as forcefully as possible the hope that every county society in the state may appoint such a committee. Let me tell something of our experience in Forsyth County. Such a committee was appointed there two years ago, as the result of a cruelly unjust newspaper account of a suit filed by a pauper against two of our reputable doctors. Every doctor felt that it should be answered but no one cared to take the initiative for fear of being misunderstood. This feeling crystallized in a motion to appoint a committee to be the official spokesman for the Society in all matters in which it needed such a representative. An interview with the editor of our papers was most satisfactory. The object of the committee was explained, and it was made plain that its members would in every way coöperate with the reporters. The names of the three members were given the newspaper and the entire reporting staff told that they might call on any one of them for the medical slant on any story that came in. We also promised to give the paper a full account of every medical meeting, and to invite a reporter to attend any of special interest.

We have found the newspaper men most courteous and considerate. Quite recently, for example, a reporter called the chairman of the committee to ask for the real facts about a suit filed by a jackleg lawyer against an interne, on behalf of a service patient, alleging cruel treatment and forcible ejection from the hospital. As usual, there was no foundation for the suit except the cupidity of the lawyer, and the public was given a fair account of it.

Another instance of the usefulness of such a committee arose when a "Public Forum" correspondent, moved by the ludicrous but despicable article of Paul de Kruif's in the *Ladies' Home Journal* on the collapse treatment of tuberculosis, wrote to inquire why our doctors were not using it. The committee replied, of course, giving the real facts in the case.

Again, when the Associated Press gave a glowing account of the wonderful new anesthetic used on Henry Ford, numerous citizens began

asking why it had never been heard of here; so a member of the committee wrote a brief note, stating that it was nothing but avertin, which had been used here in properly selected cases, for several years.

When the controversy with the Industrial Commission had reached the point where J. Dewey Dorsett wrote his letter to the employers of North Carolina, obviously seeking to prejudice them against the doctors, our committee asked for a meeting with representatives of all our principal employers, gave them the doctors' side of the matter, and had the satisfaction of knowing that most, if not all, of those who answered the commission's letter said that they were satisfied with their doctors and wanted their bills paid in full.

It seems to me that a function that might well be added to the local public relations committee is that of an unofficial—or even official—investigator of all suits filed for malpractice against any of the Society's members. Let the committee review the evidence, and then issue a report as to whether or not there are any grounds for such action. If it appears that the doctor being sued was grossly at fault, "where the offense is let the great axe fall." Only by being impartial in its decisions can the committee gain public confidence.

In this valedictory address, I wish to acknowledge with grateful appreciation the coöperation of the other members of the committee: Drs. W. M. Coppridge, J. M. Northington, P. H. Ringer, and J. B. Wright, and the ex-officio members, Drs. Manning, McBrayer, and J. M. Parrott. It was worth all the labor the job has cost me during the past year to know these men better. The close contact with Dr. Manning, in particular, has resulted in an affection which I am sure will last as long as we both live.

For the future work of the committee, I bespeak your hearty coöperation, and hereby pledge my own to whomsoever my successor may be. One suggestion I would offer is that when the North Carolina Press Association holds its annual meeting this summer, the chairman of the committee might profitably ask for ten or fifteen minutes on the program to tell something of its aims and of its desire to work in harmony with the press. Such a contact should make for even more harmonious relations in the future between the press and the physician.

One final word concerns a rather unpleasant subject, but one which legitimately comes under the jurisdiction of this committee. It is unfortunately true that within the past year the principle of medical ethics which forbids advertising on the part of physicians has been violated. It is particularly to be regretted that some, if not most, of this advertising has come from a source which we have every right to expect to set a high standard of ethical conduct. Many and vehement have been the protests against such a questionable method of appealing to the laity. Without going into further detail, Mr. President, let me offer the following resolution:

Whereas, it is a fundamental principle of medical ethics that no physician nor group of physicians shall advertise in lay publications; and

Whereas, in several instances during this past year this principle has been violated; and

Whereas, there is widespread dissatisfaction with such practice:

Be it resolved,

First, that we, the members of the North Carolina Medical Society, reaffirm our disapproval of any method of advertising to the public through lay publications, directly or indirectly, by any physician or any group of physicians organized in any way for the practice of medicine or any of its branches;

Second, that any member or members of the North Carolina State Medical Society who shall countenance any means of impressing the public with his or their medical skill, shall be asked to explain such action to the county medical society or to the councillors of the State Society, as circumstances warrant; if the advertising be more than local the councillors of the State Society shall act; and,

Third, that any member or group of members of the Society found guilty of unethical advertising, shall be suspended or expelled from membership in the county and State Society, at the discretion of the councillors.

WINGATE M. JOHNSON, M.D.,
Chairman, Public Relations Committee.

PRESIDENT MANNING: There was a recommendation from the Executive Committee. I will ask Dr. McBrayer to read it.

SECRETARY MCBRAYER: Proposal of the Committee on Public Relations, reported by Dr. Johnson, Chairman, the resolution just read in your hearing: It was moved by Councilor Strosnider, and seconded by Councillor Green, that the resolution be approved and reported to the House of Delegates, with the recommendation that it be approved by them.

PRESIDENT MANNING: This recommendation is before the House of Delegates, gentlemen. What will you do with it? The motion has been made that the report as a whole be approved, and it was seconded. Is there any discussion of that report?

. . . There were calls for the question. . .

PRESIDENT MANNING: Those in favor of the adoption of this report, including the resolution, will say "Aye"; those opposed "No." The ayes seem to have it; the ayes have it, and the motion is carried.

I will ask at this time for the report of the Committee on Industrial Relations, of which Dr. Hubert Haywood is Chairman.

. . . Dr. Haywood read his prepared report as follows:

REPORT OF THE COMMITTEE ON INDUSTRIAL RELATIONS

To the House of Delegates of the North Carolina Medical Society:

As Chairman of your committee from the Medical Society to meet with the North Carolina Industrial Commission to try to smooth out our difficulties and embarrassments concerning the payment of bills rendered by doctors, and reviewed, and in many instances reduced by the Commission, I desire to report that due to the untiring interest, and intelligently directed effort of your President, Dr. Issac Manning, who has made this the major platform of his presidential program, we have received a proposition for an agreement and an arrangement by virtue of which we hope that satisfaction will be given to the doctors and help will be given to the Commission in considering bills, which are to be reviewed on account of charges which have been considered to be above the Commission's fee level. In brief, the proposition offered to us is this: The President of the Medical Society is to appoint three physicians who are agreeable to the Commission from the ranks of the Society to meet every three months with the Commission to review the physicians' bills which have not been approved as rendered. The compensation is fixed at twenty-five dollars a day and is to be paid by the State of North Carolina. It was suggested by one of your committee that this be a secret committee as it might save them some possible embarrassment from their friends. No small task awaits these men as about one hundred and fifty bills are received by the Commission from physicians each day.

The Commission stated that the main trouble in the bills which have been reduced is the excessive number of charge visits made by the doctors. X-ray fees also have been a subject of controversy. We understand that an understanding has been reached with the X-ray men and this trouble will be eradicated. There has been a misunderstanding about maximum and minimum fees as agreed to by your previous committee and the Commission. The fees are printed on the form of the Commission and are marked in italics especially as in regards to maximum and minimum fees. Ignorance on the part of physicians as to what are the proper fees to charge for daily attendance, I believe, has been the chief source of trouble among men who do not do a considerable amount of industrial work. I believe that this part of the statute should be clarified and given more publicity among the medical profession.

I would call your attention to the fact that the Commission is handling an immense amount of work. During the eleven months from September 1, 1932, to August 1, 1933, 26,975 bills were audited and paid. There were 5,288 bills reduced by the commission. This approximates 20 per cent of the total number.

We were informed by the Commission that a recent decision by the Supreme Court relieves the physician employed by a carrier company in an industrial case of the penalty of a malpractice verdict, in that the

injured party is paid by the carrier company for his injury and cannot penalize the doctor also.

During the four years of its existence the total cost of injuries under the administration of the Industrial Commission has been $6,059,178. Of this sum the medical cost, which includes hospital and other costs, has comprised $2,047,824 or 33.8 per cent. The total number of injuries during this period has been 111,868. Mr. Dan Boney, the State Insurance Commissioner, stated to the committee and Industrial Commission that of the premium dollar paid in North Carolina by employers to the insurance companies 39 per cent is used by the company and the agent. 61 per cent is used for the payment of compensation claims. According to the figures furnished 33.8 per cent of each dollar has gone to medical care. This rate, from the standpoint of physicians and hospitals in North Carolina, compared very favorably with the rates in other states. Mr. Boney, in our joint meeting, further stated that the rates paid to the insurance companies do not represent a flat coverage, but that the employer pays according to the earning capacity of his employee and he hazard of the occupation. The employees' earning capacity determines his compensation when injured. Employers' payrolls are audited each year. As compensation costs increase premium rates increase.

There are 400 code classifications in North Carolina to determine rates by. Rate percentages are filed each year according to experience. Stock insurance companies have lost $140,000,000 in the United States in industrial insurance in the past ten years. They are rapidly getting out of the business. Mutual insurance companies are making money by taking the large and preferred risks with big premiums. They will not willingly take the small hazardous risk. 25 per cent of the business in North Carolina is classed as undesirable because of small premiums and the hazards of the enterprise. This 25 per cent is apportioned out to the companies doing business in the State under a gentleman's agreement that they will take their share of it. Originally 57 insurance companies did business in the State. Today 33 companies are operating here. 78 companies are licensed in North Carolina. Each stock company's compensation business in the State is limited to 10 per cent of its gross business. There are 92 self insurers in the State now. Big risks and big insurers do not care to go into State compensation insurance funds due to politics and the consequent higher costs of administration. The State Insurance Commission fixes the rate. Only 25 per cent of the North Carolina cases had any negligence on the part of the employer involved. Both stock and mutual companies have joined in petitioning the Insurance Commission for an increase in rates. It is predicted that we will be forced into State insurance.

This is as briefly as I can well present the subject matter of our conference with the State Insurance Commissioner and the Industrial Commission. The proposition offered by the Governor and the Commission empowering the President of the Medical Society to appoint three

doctors acceptable to the Commission to review all disputed bills with the Commission, and to be paid by the State, is offered to you for your acceptance or rejection.

HUBERT B. HAYWOOD, M.D.,
Chairman, Committee on Industrial Relations.

Dr. Haywood continued: And I think it is largely through the interests of the Governor that we did get a proposition.

Mr. Allen further made the following signed statement to me, and it might be of interest to read that paragraph:

"It is understood and agreed that if this arrangement is entered into between the Industrial Commission and the Medical Society, that all medical bills which shall be reduced and contested will be paid in the reduced amount, and that the doctor receiving the same may cash his draft or check and use it without prejudice to his rights, leaving only the difference between the original bill and the reduced amount as the subject of review. In extreme cases the doctor may have to wait ninety days, but the delay will average only about forty-five days." (Applause)

SECRETARY MCBRAYER: Mr. President, this matter was presented to the Executive Committee, and they made the following report:

On motion of Councilor Davis, the report of the Committee on Industrial Commission, made by the Chairman, Dr. Haywood, be accepted, and that the work be continued as outlined.

I move you, sir, that the actoin of the Executive Committee be concurred in.

PRESIDENT MANNING: The Chairman recognizes Dr. Brenizer, who was on that Committee.

DR. A. G. BRENIZER, JR., (Charlotte): Mr. Chairman, for what reason?

PRESIDENT MANNING: I thought you wanted to talk on it, Doctor.

DR. A. G. BRENIZER: Thank you very much. I might say just this: I met with Dr. Haywood and his committee. The Industrial Commission began by thinking that the doctors were very hostile to them, and that they were rather prying into their affairs. Before we got through, I think they realized that the doctors were fair enough, would actually recognize that doctors were unfair to the Commission in putting in bills that were in excess. That is being done. When doctors do that I think they hurt the whole profession, as can be readily seen.

Of course, we have to be fair with the Industrial Commission and with each other, if that is to work.

As we met with the Industrial Commission there, they were very fair, but after the meeting of the Industrial Commission, they published some rather ridiculous articles in the paper showing that after this confidential meeting, at which everybody was speaking from a sincere attitude, they were rather making fun of it.

I hope in the future, that at least they will get some better advice, and I hope that this committee, whoever it may be, will not be subjected to criticism because they can merely act as they see it is best to do, and in an advisory way.

Your committee was asked also if they would be willing to raise a limit as well as to lower it, and they said they would so, so that committee will act in all fairness to the doctors and to the Commission.

PRESIDENT MANNING: Is there any further discussion.

. . . There were calls for the question. . .

PRESIDENT MANNING: The question before the House of Delegates is whether they will agree to this proposition of the Industrial Commission to appoint a committee of three to meet with the Commission every ninety days and go over the contested bills and make such recommendations as they see fit, the State officers to pay $300 annually all told for that work. The question has been called. All those who are in favor of that motion will say "Aye"; opposed "No." The motion is carried.

I will ask Dr. H. H. Johnson, of Louisburg, to make a report for the Committee on Maternal and Infant Mortality.

DR. H. H. JOHNSON (Louisburg): Mr. President and Gentlemen of the House of Delegates: This committee, for which I am to report the attitude, is an unofficial committee. It represents a delegation of men in general practice who meet with the Health Department at their request to discuss the problem of high infant and maternal death rate.

I don't think this is any time for a long, detailed report. I know you are all tired, and the subject matter which I am just going to touch on briefly is to be covered in two other papers, one by Dr. Houser, who is a member of that committee, and one by Dr. Cooper, who represents the State Health Department.

As you know, or probably you don't know, but if you don't you should, North Carolina occupies a position that reflects no credit at all to its medical profession in reference to high maternal and infant mortality rates. There are seven other states, no one of which is comparable in wealth, in resources with our State, that seperate us from the bottom of the heap. This condition has existed for at least ten years, ever since the registration area has been in force. The State Board of Health feels keenly that that does not reflect the inherent ability of our profession. The State Board of Health feels that something should be done to put this State and the profession, the medical profession of the State, in a more acceptable comparison. For that reason they called this meeting in Raleigh two weeks ago. The composition of that committee was a little bit unequitable. It represented only general practitioners, mostly in small towns, in rural sections, to discuss the problem, make an analysis of it, and make recommendations as to what remedies were available to mitigate the situation.

My purpose, as I understand it from the President, is merely to report very briefly a summary of the situations that took place, a statement

of the problem as we see it, and a statement of the remedies which can possibly be applied.

Your President particularly requested this report be brief, and it will be very brief. As I say, the problem needs no restatement, in spite of the fact that the general death rate in North Carolina has been appreciably decreased in the last few years, our mortality for our mothers and our young infants remains terribly high.

Our analysis of the problem was that throughout the state, too many of our people through ignorance, economic necessity and the pressure of old established customs, do not know about adequate obstetrical care. They do not insist upon obstetrical care. They are not prepared to pay for it, hence they don't get adequate obstetrical care, even in that period before confinement, at confinement, and the period afterwards. An analysis of the deaths, the maternal deaths, shows that fully one-third of them are due to toxemias of pregnancies, which theoretically are all preventable, and from a practical standpoint show the vast majority of those deaths should not have occurred.

It is for the reason that adequate pre-natal care would obviate the necessity of those deaths that particular stress was laid upon that one phase of obstetrical care, pre-natal care.

If we can reduce, cut down, these deaths due to toxemias of pregnancy to an irreducible mimimum, our rates will be comparable to the other states that at the present time stand far ahead of us. The remedy, as we see it, and it was the unanimous concensus of all those men around the table, is purely an educational one to create an enlightened public opinion that shall state in no uncertain terms that the mothers of North Carolina are entitled to the same safeguards at the time of pregnancy, at the time of confinement, that they are in other states, and when the day comes that that public opinion has been led to the proper point, our mortality rate will decrease.

We believe that in general the people must be educated to the fact that child-bearing is not devoid of danger, that adequate pre-natal care is needed to safeguard the mother's life.

We believe further that the people should be educated to the fact that the doctor who painstakingly takes care of this woman through pragnancy and confinement is entitled to be paid, and except in the case of indigent people in the many months that elapse during the pregnancy period, arrangements shall be made so that the doctor shall get his fee.

We feel also that the people in general should be told what adequate pre-natal care means. There are communities where pre-natal care is entirely unknown. The statistics of the Health Department show that one-third of the women who are confined in this State never see a doctor, one-third of them have no pre-natal care at all, leaving only in the present state of affairs one-third of the confinement cases where the doctor has any opportunity at all to prescribe and supervise pre-natal care.

We feel that as far as the doctors are concerned, they should be made aware of this challenge that is being hurled at us. We feel as members of the profession we can't escape the full responsibility for this high infant and maternal death rate. A certain amount of that responsibility must be borne on our shoulders. We feel that the profession in this State is just as able, they are just as conscientious, they are just as resourceful as those of any other state, and we think if they are properly appealed to that they will respond and the profession as a whole will rededicate itself to more careful obstetrics.

We feel that the municipalities and the county governments should be influenced to see that the part of the burden that is rightfully theirs, they should set aside in their budget a certain sum of money to be expended for the care of indigent women at the time of their pregnancy. I think the municipal governments and the county governments have too long considered that the doctor is an eternal Santa Claus. I believe they should be instructed that part of the burden lies upon them, and it may be reprehensible to say it, but it is a fact, that when doctors are better paid for obstetrics, they are going to do better work.

As far as the means are concerned for carrying out this educational campaign, the means seems to be unlimited. As far as the ability is concerned, they should be educated along the points that I have mentioned. The daily press, particularly the county press that goes out into the rural and less enlightened communities, they would gladly coöperate. Articles should be written, prepared either by local health officers, state boards of health or by local men in the Society, it doesn't matter where, provided they are well written, should appear in the various periodicals. We feel that reports of the activities of pre-natal clinics, which should be established throughout the State, we feel that those activities published in local newspapers will do a lot to spread the gospel of proper care, particularly the pre-natal care.

Talks before women's clubs and parent-teachers' associations are very valuable in awakening people to the problem which vitally concerns them.

As far as the doctor is concerned, coöperation should be had with district councilors. They should be prevailed upon to see that at least one aspect of this problem should be discussed at every district meeting. All local societies that are active should be encouraged to have papers bearing on the same thing. I think from time to time pamphlets of concise information could with profit be issued by the Health Department giving the more modern and more efficient methods of treating some of the complications of pregnancy, particularly toxemia in pregnancy, which in the last few years, marked success has been obtained.

We feel that the most important educational force both for the laity and for the doctor is the establishment throughout the whole State, in every county seat, in every larger town, of pre-natal clinics. It hits both ways: to be of greater service every doctor in the community should be asked to conduct this clinic in rotation.

The laity will soon be convinced of the necessity for this pre-natal care, and the doctor will unconsciously get in the right frame of mind toward pre-natal care, and I believe that the psychological effect in many in regard to the labor itself will be marked. I don't think any man will painstakingly start a task and then finish it poorly.

As far as the means of conducting these clinics, while I think the local societies should establish them, I think it is perfectly proper for the local health officer or the State Board of Health to initiate in each community the establishment of this pre-natal clinic, and I think that all the civic organizations, the women's clubs, Kiwanis, Rotarians, Junior Orders, and Junior Leagues, will all be so happy to contribute to the very minor item of cost. The fraternal orders and the civic clubs are looking for opportunities to benefit their communities, and they will most heartily coöperate.

If I may be allowed to say so, within the next couple of weeks we expect to establish in Franklin County, a county certainly as small and poor and as unlucky as any other in North Carolina, although a splendid one to live in, a pre-natal clinic through the Kiwanis Club with the active help of the members who are associated with that club, using whatever personnel of the Health Department we can. It can be done in every county of the State. It can be done if we will do it.

There are one or two other factors that I haven't touched on. As far as the infant mortality is concerned, I feel that that is entirely tied up with the question of better obstetrics.

The question of midwives is a question possibly that conduces somewhat to our high rate. Take the present time, the Health Department is endeavoring to educate them and train them as far as it can to a policy of watchful waiting and non-interference. If more legislation is necessary, by all means let us have it. The midwife situation is a necessary evil, and until an enlightened public opinion drives them off the map they will still be with us.

One other factor: That the high death rate bears a part in our high mortality I firmly believe, but it is very questionable if the time is ripe for an active campaign for blood control, which everybody knows is badly needed in this State. Our committee has made a rough estimate of this situation. It is probably very imperfect. It is a statement made by men who are actively engaged in practicing obstetrics as part of the general practice. We have pointed out what we think are the means of carrying out an educational campaign, which we think is the answer.

The only purpose I have in making this brief and wandering report tonight is merely to arouse you gentlemen to the point of seeing that this Medical Society needs a permanent committee to proceed along—even along the lines that we have laid out or better lines—to carry out this campaign which must run for a matter of years before you can see any appreciable letdown in the terrible rate which we have, and which to my mind is a shame in North Carolina, and a reflection in part on the profession. (Applause)

PRESIDENT MANNING: Dr. Parrott asks that this or some committee be made a permanent committee, which is conditioned on the financial status of the Society. Is there any discussion?

SECRETARY MCBRAYER: I move that the report be accepted.

. . . The motion was seconded. . .

PRESIDENT MANNING: If there is no further discussion those in favor of the acceptance of this report will say "Aye"; opposed "No." The motion is carried.

Dr. W. S. Rankin seems to have something to say to the body.

DR. W. S. RANKIN (Charlotte): Mr. Chairman and Gentlemen of the House: Mecklenburg County Medical Society passed an important resolution dealing with this question of workmen's compensation several weeks ago, and the President of the Society, Dr. Gaul, who is here, but not a member of the House of Delegates has the resolution, and is thoroughly familiar with the background of the resolution and discussion, and I want to ask the House of Delegates to allow him to present the resolution in my stead.

PRESIDENT MANNING: If there is no objection, we will hear from Dr. Gaul.

DR. JOHN STUART GAUL (Charlotte): Mr. President and Members of the House of Delegates: There is probably no problem more pressing or giving more concern to the medical profession of the State of North Carolina than the Industrial Compensation Act and its administration. A number of the county medical societies have recognized this fact, and have taken definite action on this problem. The Mecklenburg Medical Society sometime back appointed a committee to make a complete and thorough study of the Compensation Act as it affected the physicians of the State of North Carolina, and to draw up a resolution to present to the State Medical Society, and I have the honor of having been a member of that committee, and Dr. Rankin asked me if I would present that resolution to you tonight. If I may be permitted to make a few remarks, it may help to clarify the resolution.

In the first place, this committee made a complete study not only of our Industrial Compensation Act, but of the Industrial Compensation Act of all the states in the Union that have an act.

In addition to that, we got a report from the state medical societies in these states that have an Industrial Compensation Act, with the idea of formulating some formal action that we might take. I might state that the history of our Industrial Compensation Act parallels that of the Industrial Compensation Act in practically every state that has adopted one. In the first place, the state medical societies have been dormant while they went ahead and put in an Industrial Compensation Act. After the Industrial Compensation Act was enacted the medical societies have realized there are things in those acts that do not meet with the approval of the medical society, and our State Medical Society has done like all the

other state medical societies, and has tampered with the Act, and instead of going and doing as the other state medical societies finally found they had to do: appoint a committee from the State Medical Society and make a thorough and complete study of the Act as it affected their own state, and realizing in addition to that that not only were the doctors affected under the Compensation Act but that the injured workman was affected under the Compensation Act, that the industrial employer was affected, the insurance carrier was affected, your hospital association and your hospitals were affected by the Act, your dental association was affected by the Act, your nursing association was affected by the Act, and having those groups get together and formulate an act which was agreeable to all of them and eliminate a great deal of this trouble that we are having at the present time with the Act we have in North Carolina—all the other states have found exactly what we have found in North Carolina. They all made the mistake that we have made of placing the discretionary power in the hands of a lot of laymen, the Industrial Commission, instead of reserving that to themselves, the medical profession.

Practically all the states have had their acts amended so that the discretionary power of dealing with the medical problem resides in the medical profession. Practically all the states have had their acts amended, so that instead of doing as Doctor Haywood has recommended tonight, that a committee of three physicians appointed by the State Medical Society adjudicate all these discrepancies, practically all the states have found it is more advisable to have a local county medical society unit set up to adjudicate the discrepancies arising between the insurance carriers, the self-insurer and the doctor, in the case of these bills.

With those few preliminary remarks, I will proceed to read the resolution that we adopted at the Mecklenburg County Society:

"Whereas, there is great dissatisfaction on the part of physicians and hospitals in North Carolina regarding the assignment of cases for treatment, and regarding pay for services rendered under the North Carolina Compensation Act; and

"Whereas, the basic faults which bring about this dissatisfaction are several; among these are:

"(a) Interference with the inferred and conferred right of physicians to a fair field without favoritism, in the practice of medicine in the State of North Carolina; by discouraging injured employees from exercising their right of choice of physicians, and by the insurance companies actually transferring them from one physician to another physician of the insurance companies' choosing;

"(b) Inadequate fees paid;

"(c) Physicians are subjected to unnecessary indignities, having their private business affairs unnecessarily paraded in the courtrooms, by correspondence, and in the public press;

"(d) For these faults the Industrial Commission, certain insurance companies, the Compensation Act, and to some extent, physicians are responsible; and

"Whereas, the insurance companies and those self insuring constitute one group; the physicians of North Carolina a second group; the hospitals a third group; the dentists a fourth group; the nurses a fifth group; the industrial employees a sixth group; and the industrial employers a seventh group, who are vitally interested in the matters coming under this Act; be it

"Resolved, that a committee of not less than ten members be appointed to constitute a committee to represent the North Carolina State Medical Society and to work for the adoption of such changes as may be necessary in the Industrial Compensation Act to effect the necessary results, at the next meeting of the State Legislature; and be it further

"Resolved, that the members of this committee shall be appointed one for each councilor district, being selected by the delegates present, from each respective district; and be it further

"Resolved, that this committee work with similar committees from the respective groups affected by the Industrial Act, said committees' appointment to be requested by the State Medical Society from said groups; and be it further

"Resolved, the Medical Society of North Carolina take such measures as may be necessary to insure the enactment of the desired legislation at the next meeting of the State Legislature in January 1935."

We feel to accomplish any real good it has got to be done through the State Legislature. To accomplish any real good through the State Legislature the Medical Society itself cannot go down there and request certain things to be done.

There is dissatisfaction on the part of all the groups affected by the Compensation Act, and with committees appointed from these various groups affected under this Compensation Act working in conjunction with the Medical Society to present a program for legislation to the next Legislature we believe that program can be adopted. Without it, for the State Medical Society to go down, and with all the other groups interested fighting us, we would get nowhere. (Applause)

President Manning: In view of the action of the House of Delegates on Dr. Haywood's recommendations, and which were approved by the Executive Committee, I am at a loss to know just what should be done with this. Has anyone any suggestions?

Secretary McBrayer: Mr. President, it occurs to me at this particular time, if it is satisfactory to Dr. Gaul, that the only thing we could do with it would be to refer it to the Executive Committee for such action as they may be able to take in connection with the arrangements they already have in hand. Would that be satisfactory to Dr. Gaul?

Dr. John Stuart Gaul (Charlotte): I might state this, what I think the Medical Society ought to bear in mind that whatever is done, if some legislation isn't enacted next January, we have our necks under this collar for another three years before we can do anything further.

It seems to me that in the interests of fair play not only to the Medical Society but to the insurance carrier and to the injured workman as well, the proper solution of this whole problem is to have a committee appointed to meet with these other committees to bring about fair and just and equitable legislation in the next Legislature. It does seem to me that it is also fair that whatever action is taken by this Medical Society ought to be done as affecting the group as a whole, and it seems Mecklenburg Medical Society think the only fair way to get at that is to have a committee appointed representing each one of the ten district medical societies, and the representative can take whatever problems there are up back to his district medical society or county medical society, and we can get some fair and just evaluation of what the State Medical Society as a whole feels about it; whereas if we leave it to one or two or three men I don't believe we will get anywhere with it, and I believe we will have dissatisfaction no matter what we do.

President Manning: Are there any further suggestions?

Dr. R. B. McKnight (Charlotte): I don't think this resolution from the Mecklenburg Medical Society interferes one bit with the resolution offered by Dr. Haywood and adopted by the House of Delegates. His resolution, which we adopted, simply provides for a committee, as I understand it, of three doctors, or five, as the case may be, to meet at periodic intervals to review these bills, which may be contested with the Industrial Commission. This scheme on the part of Mecklenburg Medical Society is something which we hope to take care of in the future. It is a method now with which we can plan to approach the next State Legislature when it meets, in January 1935, with some concerted action on the part, not only of the doctors, but of all different concerns affected by the Compensation Act. I don't see that this resolution interferes one bit with the resolution offered by Dr. Haywood.

Secretary McBrayer: Make a motion.

Dr. R. B. McKnight (Charlotte): I make a motion then that the resolution as presented by the Mecklenburg County Medical Society be adopted.

. . . The motion was seconded. . .

Dr. Watson S. Rankin (Charlotte): Mr. Chairman, I sympathize with the President and with the Chair in their position of not knowing or being clear in their mind as to the procedure. I am not clear in my mind as to the course of this resolution of Dr. Gaul's. I agree thoroughly with Dr. McKnight that there is no conflict in this resolution with Doctor Haywood's resolution because Dr. Haywood's resolution deals with a committee on the adjustment of fees. This resolution deals with amendments to the Workmen's Compensation Act. One has a problem of adjusting fees under the existing Act, and this is new legislation that Dr. Gaul is proposing in the resolution coming up here from the Mecklenburg Medical Society. The conflict arises here: Dr. Gaul is providing for a

special committee, special legislative committee, to deal with legislation, with the amendment to this Workmen's Compensation Act, and that is in conflict with the provision of the Society in having a committee on general legislation. That is where the conflict I think lies or the duplication.

SECRETARY MCBRAYER: I agree with you.

DR. WATSON S. RANKIN (Charlotte): I think in view of that fact, that you have a Committee on Legislation, and the resolution here from the Mecklenburg Medical Society comes up and requests the appointment of another committee on legislation or a special committee on legislation, that this resolution from the Mecklenburg County Medical Society ought to be referred to your Committee on Legislation for such action as it deems necessary rather than referring it to the Executive Committee of the House of Delegates. It is dealing with a legislative problem, and you have got a committee on legislation.

The question this House of Delegates has to decide is whether you want a committee on legislation, which you have, and another committee on special legislation which Dr. Gaul is proposing. For my own part I don't think the House of Delegates ought to have two committees. I may be out of line with my colleagues in the County Medical Society in that position, but my own feeling is that this resolution of Dr. Gaul's should be referred to our Committee on Legislation for report and action. I am not going to make that motion because I am not familiar with the background of this resolution, but I think that is the course it ought to take.

DR. JOHN STUART GAUL (Charlotte): Mr. Chairman, I might state this for your information: Any committee that you may appoint on this matter is going to have a considerable amount of study to do, and I believe that your Committee on Legislation will have a considerable amount of work on the ordinary routine matters that come up in the legislature, but any committee that is appointed on this one particular subject has a world of work ahead of it, and they are going to have a lot of committee meetings. They are bound to have committee meetings with the representatives of the insurance carriers, the industrial self insurers, the labor organizations and other organizations enumerated in the resolution, and it does seem to me that it would be appropriate to appoint a committee, a special committee, for this one particular subject and to have that committee representing all the ten districts of the State Medical Society.

Those members are going to have to go back to the component medical societies. For example, in the question of a minimum set of fees—they are going to have to go back to the county medical societies and have that all threshed out, and it does seem to me that one committee is going to have a world of work ahead of it with the resolution.

PRESIDENT MANNING: Would you accept a suggestion that the committee be appointed to study the Workmen's Compensation Act and recommend such amendments to that act as it thinks advisable?

Dr. John Stuart Gaul (Charlotte): That is the object of that resolution.

Dr. H. B. Hiatt (High Point): I would like to know, Dr. Gaul, if all these other organizations of which you speak are willing to coöperate with us?

Dr. John Stuart Gaul (Charlotte): I might say that I have gone to the trouble to make investigations and find out.

Dr. H. B. Hiatt (High Point): Have you assurance that you can get all these ten organizations to coöperate with you?

Dr. John Stuart Gaul (Charlotte): Yes, I can assure you that the insurance carriers are considerably dissatisfied with it, and I can also assure you that most of the insurance carriers state that they are having more difficulty in the State of North Carolina between the doctors and their claims than they have in all the rest of the states of the Union, and they feel that we ought to go back to what New York, New Hampshire, Vermont, Rhode Island, New Jersey, Utah, Oregon, California, Ohio and the other states have done, of appointing a local county medical society unit to adjudicate those claims, and take the discretionary power out of the hands of the Industrial Commission and put it in the hands of the Medical Society, and when it goes down to the Industrial Commission for the Industrial Commission to be merely a rubber-stamp and approve of what has been adjudicated by the local county society unit.

Dr. H. B. Hiatt (High Point): Mr. President, I think I started most of this discussion last year in a talk that I made that resulted in the appointment of your Industrial Commission Committee. I think Dr. Gaul's idea is very, very good. I have just come out of a meeting of the Nominating Committee, and in this Committee we discussed whether the Legislative Committee was constitutionally limited to three or five men. Dr. Wright told us that when he was President of the Society that he appointed five, and the Executive Committee properly wiped out two. It seems to me that the solution of this question is as Dr. Rankin suggested. There is no question but what this is a matter that should be referred to the Legislative Committee.

Now, I believe, sir, that this Legislative Committee ought to be enlarged to a point where they could appoint a sub-committee to attend to this proposition. You appoint a committee to study this separately, you are reduplicating your committees. You have got a list of committees on your program now that long, and half of them do not know what it is all about, and I feel, sir, that the thing for this House of Delegates to do, is increase the personnel of this Legislative Committee from three to I don't know what number, but to a sufficient number where they could appoint different sub-committees for different specific acts of legislation coming up like this.

I am heartily in favor of Dr. Gaul's idea. I don't know whether I endorse the county unit idea or not, but I do think we have got to get

back and get in and basically change our Compensation Law before we are going to get anywhere. But it is a Legislative Committee problem. There is no question about that, and it should be handled by a committee that is in close touch with the Legislature while the Legislature is in session, and while the log-rolling is going on.

President Manning: We have one more motion before the house.

Dr. T. W. M. Long (Roanoke Rapids): Mr. President, I served in two legislatures, in the House and in the Senate. I spent many hours on this very sort of discussion. What Dr. Gaul has brought here in this Mecklenburg declaration in my opinion is the clearest solution legislatively that I have ever heard of this matter. These groups that he has named here, seven I believe there were, have been like seven coveys of birds flushed at the same time. They always fly in opposite directions. He says that he has an assurance that they will all work together. That being true, I heartily second McKnight's motion that this resolution be adopted, and that the ten, I think is the number named in Dr. Gaul's resolution, one from each district—let that be a special committee to deal with this. There are going to be scores of other things that your Legislative Committee will be occupied with, and I think it will be wrong for Dr. Hiatt to burden that on the Legislative Committee.

Dr. H. B. Hiatt (High Point): Not unless its personnel is tremendously increased.

Dr. T. W. M. Long (Roanoke Rapids): But he has ten. I think you have a special committee, one from each district. That is my honest, humble opinion. I think then you will go places in common parlance, if this thing is worked out as outlined, and I heartily second McKnight's resolution.

President Manning: Dr. McKnight's motion—will you state it, Dr. McKnight?

Secretary McBrayer: May I state just a word? Dr. McKnight, it occurs to me, if you will pardon me, Mr. President, for addressing Dr. McKnight, if you would change your motion just a little to approve the resolutions presented from the Mecklenburg County Medical Society, and that the committee provided for be integrated with the Committee on Legislation of the State Medical Society. I believe that would cover the situation, and make a cohesive working whole.

If I were Chairman of that Committee on Legislation I would recognize the fact that the Mecklenburg County Medical Society, and Dr. Gaul particularly as its President, had been doing something, and had been doing some work on this particular thing, and I would immediately make Dr. Gaul a member from that district and tell him "to go to it." I believe that a motion of that kind will still make our legislation as proposed by committees cohesive and produce a oneness, and at the same time produce the results that your Mecklenburg County Medical Society had in mind.

Dr. R. B. McKnight (Charlotte): Mr. President, three or four members of the Mecklenburg County Medical Society have done a tremendous amount of work on this. We have reports on the compensation laws, from the medical societies of a large number of states in the Union, and using those, studying those, the Committee of the Mecklenburg County Medical Society formulated this report which was adopted at a meeting about two or three weeks ago. Wouldn't such a motion as this cover that: (I move that these resolutions be adopted and turned over to the Legislative Committee, with the instruction—and the House of Delegates I understand has authority to instruct any of these committees—that a committee of ten, as so named in the resolution, be appointed or selected as the case may be, and put to work.)

Dr. H. B. Hiatt (High Point): That covers it.

Secretary McBrayer: I think that is fine.

Dr. H. B. Hiatt (High Point): I second that motion, Mr. President.

President Manning: Is there any further discussion? Those in favor of that motion will say "Aye"; opposed "No." The motion is carried.

Dr. Webb Griffith has something to present to the House of Delegates. Is he here? He doesn't seem to be here.

Secretary McBrayer: Mr. President, at the last meeting of this Society, upon my motion, the Mitchell-Avery Counties Medical Societies were combined into one society. I made that motion because I felt that the Avery County Medical Society wasn't functioning very well, and they didn't keep their dues paid, very many of them, though some of them did pay regularly, and the Avery County Medical Society felt that they preferred to run their own show, and Dr. Sloop is here, and I have a letter from the Secretary and the President also, stating that fact, and I will, therefore, move you, sir, that the action of last year combining the Avery and Mitchell Counties Medical Societies be rescinded. Is that all right, Dr. Sloop?

Dr. Eustace H. Sloop (Crossnore): Yes, sir.

. . . The motion was seconded. . .

President Manning: The motion has been made and seconded. Those in favor of that motion will say "aye"; opposed "no." The motion is carried.

Secretary McBrayer: Now, Mr. President, we have an officer, Dr. Johnson, the very efficient secretary of the Surry County Medical Society, who has interested himself in the Yadkin County Medical Society, which adjoins Surry, and he has a statement here signed by every physician in Yadkin County, about one or two more than I thought belonged over there, but anyway, requesting that they be allowed to unite with the Surry County Medical Society in one society to be known as the Surry-Yadkin Counties Medical Society. Dr. Johnson, did you decide on a name, Surry-Yadkin or Yadkin-Surry?

Dr. Joseph L. Johnson: I think they will adopt your suggestion of Surry-Yadkin.

Secretary McBrayer: Yes, I think that is better, and I move you, sir, that the by-laws be amended to comply with this request.

President Manning: Is there a second to the motion?

. . . The motion was seconded. . .

President Manning: Those in favor of this motion will say "Aye"; opposed "No." The motion seems to be carried.

Secretary McBrayer: Mr. President, if I may be pardoned, I have one other thing I want to present. I know that you all noticed with a great deal of regret the absence of Dr. Parrott. Dr. J. M. Parrott has been a loyal supporter of this Society and organized medicine in general, ever since he became a member of the profession. He has occupied a great many positions of trust, served on a great many committees, he has been a member of the State Board of Medical Examiners for a term of six years, he has been a member of the State Board of Health, he was president of this Society in 1913 and 1914, and he is now as you all know our state health officer. He is prevented from attendance upon this meeting because of illness. This would have made his thirty-seventh consecutive meeting that he has attended, which I imagine means from the time he was eligible for membership in the State Medical Society and his county society.

I asked his physician, Dr. Haywood, if it would be all right for us to send him a telegram of regrets at his absence and hope for his speedy recovery, and I move you, sir, that this Society instruct the Secretary to send such a telegram.

President Manning: All in favor of the motion will please say "Aye"; opposed "No." The motion is carried unanimously.

If there is no further business, the House of Delegates stands adjourned.

Secretary McBrayer: Will the Councilors please hand in their reports?

. . . The meeting thereupon adjourned at 11:40 o'clock. . .

WEDNESDAY EVENING SESSION

May 2, 1934

The second and final session of the House of Delegates convened in the Ball Room at seven forty-one o'clock, Dr. I. H. Manning, President, presiding.

President Manning: The House of Delegates will come to order.

The first report on the program is that of the Committee on the President's Address.

Secretary McBrayer: Mr. President, the Committee asked me to present this for them:

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS

Your Committee on President's Address begs leave to submit the following report:

We wish first to congratulate the Society on having Dr. Manning as its President. Unquestionably, Dr. Manning has been one of the greatest presidents we have had in past generations.

We wish to commend most heartily Dr. Manning for his tireless efforts in behalf of this Society and to publicly express our appreciation for his many accomplishments.

We earnestly recommend to every member of this Society the careful reading and study of the President's Address when it appears in the Transactions in order that he may understand his responsibility as a member of organized medicine.

We want to stress the fact that the Society cannot function without adequate resources. It is of vital importance that our membership be increased or our dues must be raised in order that ample funds may be provided with which this Society can function with dignity and credit to our profession.

We recommend that the Executive Committee take under consideration the appointment of permanent committees on Maternity and Infancy and on Immunization and devise ways and means to finance their activities.

Respectfully submitted,

N. C. Daniel, *Chairman.*
J. F. Robertson,
Julian A. Moore,
Robert F. Leinbach,
J. R. Terry.

Secretary McBrayer: I move adoption of the report.

. . . The motion was duly seconded. . .

Secretary McBrayer: As many as favor the adoption of this report please say, "Aye," opposed, "No." The motion is unanimously carried.

President Manning: I will ask next for the report of the Finance Committee.

REPORT OF THE FINANCE COMMITTEE

Chairmen Sections:	
Stationery	$ 10.00
Councilors:	
Stationery	10.00
Traveling expense	250.00
Executive Committee	500.00
Other Committees	300.00
Legislative Committee	500.00

President's Office:	
Stationery	10.00
Telephone, telegraph, and postage	15.00
Traveling	200.00
Secretary's Office:	
Secretary	1,000.00
Clerical assistance	1,000.00
Stationery	100.00
Rent, light, and water	300.00
Traveling	250.00
Freight and express	10.00
Postage, telephone, and telegraph	150.00
Miscellaneous	150.00
Transactions	2,000.00
Reporting	800.00
Preparation of copy	150.00
Miscellaneous	50.00
Northington	700.00
Deficit	345.00
Total	$8,800.00

We do not see how it is possible to reduce this budget unless we cut out travel expenses. We the Finance Committee do not see how we can expect men to function on various committees if they are expected to pay expenses out of their own pockets. We cannot expect the President to pay his own expenses. It is unfair to ask this of these men.

The Society has one of two courses to follow: (1) To cease to function except in a perfunctory manner, (2) To raise the dues and to get enough members to pay these dues so that this Society can function.

The only possible solution of this desperate situation is to call for voluntary subscriptions to raise the necessary funds or to attempt to raise an endowment fund, or finally to raise the dues.

The Finance Committee feel that they have not had sufficient time to study this budget, nor do we yet know what our income will be and we suggest the following:

That the adoption of a final budget be postponed until the first meeting of the Executive Committee, and that the present budget be considered tentative only.

We feel that Dr. Manning's suggestion that an endowment fund be raised for disabled doctors will have to be postponed until our own finances are in better shape.

We wish to recommend that the By-Laws be so changed that the last meeting of the House of Delegates be at 2:00 p.m. on the second day instead of 8:00 p.m. on second day.

Julian A. Moore,
Vance P. Peery.

President Manning: Gentlemen, I am speaking now as a Past President.

This budget calls for a total of $9355 which at the present rate of dues, $5, would mean a membership of something over 1800. We have found there are approximately 2000 doctors practicing in the State of North Carolina.

On the face of it, it looks like an impossible proposition. Yet in going over this budget with the members of the Finance Committee there did not seem to be any item on this budget that could be reduced, so it had to be left for final approval at a subsequent meeting of the Executive Committee, in the hope that in the meantime enough members could be secured to raise as much money as possible, and I think that the Councilors ought to undertake to see that as many members as possible from each of the districts become members of the State Medical Society.

As I reported in my address to the House of Delegates on Monday night, there are a number of doctors in the various counties who are members of the county societies but who are not members of the State Society. Of course, that is not in line with the Constitution. A member of a county society is automatically a member of the State Society but, for some reason, that article of the Constitution has been ignored.

Personally, I happen to know of several counties where at least half of the members of the county medical society are not members of the State Society.

Of course, it is utterly impossible for the officers of the State Medical Society to do that type of work and it devolves upon the Councilors, who have relatively a small number of counties to work with, and unless the Councilors take more interest in that kind of work the Society is going to be very much embarrassed in attempting to carry on the work, which is for the benefit of the entire profession of the State. Every doctor in North Carolina whether he is a member of the Society or not gets full benefit of anything that the Society does for its own members, so they ought to be willing to contribute something, and five dollars is little enough, to the support of this organization which has to do with the problems of the entire medical profession of the State.

One of two things has to happen. Either we have to increase our membership as this report suggests, in order to raise the necessary amount of money, or we have to stop trying to do many of the things that we are now trying to do for the benefit of the profession. And I believe that if the Councilors will take it upon themselves to present the matter to the members of the profession in their respective districts, and to the various county societies, we will accomplish a great deal.

Of course, it is eminently desirable that every man practicing in North Carolina should be a member of the county and state societies and take his place and do his share in organized medicine.

I am taking this opportunity to say this for the benefit of those presidents who are to follow me. It is no more than right that the men who

give their time in the service of the profession should at least have their expenses (provided those expenses amount to more than a nominal sum) paid by the organization and the By-Laws, as Dr. McBrayer says, require that those expenses be paid.

Another alternative, I think, as was said last night, that we have to face is an increase in the dues of the Society. If I am not mistaken the dues to the Academy of Medicine of Richmond alone are $25 a year, and I don't believe that the Academy of Medicine of Richmond, or any other organization, is doing any more than the Medical Society of the State of North Carolina is doing for the profession.

I wanted to say that in explanation of this budget, although as the committee suggests final approval or judgment will be postponed and be left in the hands of the Executive Committee for some subsequent meeting.

Dr. W. S. Rankin (Charlotte): Mr. Chairman, may I ask how other states are raising the funds with which to carry on the work of their state medical societies, and how our membership dues compare with those of other state organizations, and whether in any of the other states they have different classifications of members, say, supporting members and ordinary members? Dr. McBrayer is thoroughly familiar with the general practice throughout the country. I should like to have just a brief statement on how the other states are meeting this same problem.

Secretary McBrayer: Mr. President, there are two other states, I believe, in the Union that have a five dollar fee. One of them is South Carolina. The fees over the country range from $7.50 up to $25, a few being $7.50, some $10 and some $15.

Dr. J. M. Northington (Charlotte): I should like to ask Dr. McBrayer what those dues cover in those states that are different, generally speaking, from what we have in North Carolina.

Secretary McBrayer: The $5 dues, as a rule, give very little. In South Carolina they furnish the State Journal. My friend, Dr. Hines, is the editor of that, and he is a very, very fine man indeed and very capable, but on account of the small amount of funds they have the Journal is a very small affair, and such records of the meetings and of the doings of the profession in the state as are published at all are supposedly published in that Journal.

Then in a large state such as Texas, they had the dues for quite a long while at $25 a year. A certain part of that was set aside for the defense of malpractice suits, and they also publish a journal, and do quite a good many other things. They have a very large membership. I think their dues have been reduced, probably to $15, in the last year or two. I don't know what curtailment they have made in the things that they carried on.

That about covers it. The states that have $5 dues furnish very little as a rule, I should say not half as much, not a fourth as much perhaps, outside of the Journal, as our Society does, maybe not even a tenth as

much, and we furnish our volume of Transactions. And the dues run from $25 on down to $5.

Dr. H. L. Johnson (Elkin): Mr. Chairman, it is not my purpose to take issue with anything that has been said but I am satisfied with the plan of the budget, and I am also firmly convinced that a little more activity on the part of the various county secretary-treasurers will bring in a lot more money than has been brought in and I think it would be well for the Councilors to try to instill a little enthusiasm into the various county secretary-treasurers. Being one myself I am subject to the same call as they are and I know that just a little more activity in collecting dues will help the cause.

President Manning: Is there any further discussion? I will not ask for a vote of approval on this unless you care to offer a motion to postpone.

Dr. R. B. Davis (Greensboro): I should like to ask a question, Mr. President.

In the event that when the Executive Committee meets it discovers that it is not going to be able to get sufficient members to take care of that budget and in its opinion it becomes necessary to raise the dues, will it be given authority to raise the dues, because we will not have another meeting of the House of Delegates until the year is up?

I should like to ask that question: whether or not it will be possible for the House of Delegates to set a figure to which they may raise the dues.

President Manning: I think the Executive Committee may possibly have the authority but I don't believe they will exercise it. The Executive Committee as I understand it functions in the interim between meetings of the House of Delegates. I haven't any idea, however, that they will raise the dues to take effect, at any rate, until the next meeting of the House of Delegates.

President-elect McCain: Mr. President, may I state that I feel confident the Executive Committee will not raise the dues and I certainly will do everything in my power to keep them from doing so. I am quite sure they wouldn't attempt to do it without a full meeting of the House of Delegates.

Secretary McBrayer: Mr. Chairman, I think that it would be wholly impossible for the Executive Committee to raise the dues for 1934 because a large majority of the members have paid their dues and have their membership cards already.

I agree with Drs. McCain and Manning that there would be no tendency or desire on the part of the Executive Committee to assume that authority even if it were possible to put the raise into effect for this year, which it would be wholly impossible to do.

Dr. Dewett Kluttz (Washington): You spoke of philanthropy. As I understand it, there is a difference of about $3000 between what we are getting now and what we need. Is that correct?

Secretary McBrayer: Yes.

Dr. Kluttz: Is this thought unreasonable: to get sixty groups in the state to donate this amount for a year, so that we can show the rest of the Society that we are up against it and that some men are willing to help out the Society in its extreme need and then maybe next year we can come in with the increase in dues?

I was just figuring here that if you could raise the dues a dollar (it is not possible now, of course), put on that first raise, then get thirty groups to donate $50 apiece, that would see us through.

There are so many men who refuse to pay the State Society dues because they think it is too much. Well, I rather felt that way myself last year but I know now it is wrong. The Society needs money. I realized at this meeting how efficient it has been and how much more efficient it could be if we could carry out the thoughts that you have suggested.

I just suggest that as a thought.

President Manning: It is suggested here in the report of the Finance Committee that this deficit with which we are now faced will be made up by contributions from the members of the Society, voluntary contributions. That, of course, is always an uncertain source. Doubtless the medical profession will come forward and make sufficient contributions to cover this deficit but as everyone knows—I am not telling you anything new—you cannot run an organization satisfactorily on voluntary contributions. It is a very uncertain source. You never know how much you are going to have. And so far this year, at any rate, we are confronted with a rather serious deficit and we will have to make up that deficit or else go on to the next year and carry the deficit over.

Dr. Willis: Mr. President, I should just like to know if this deficit is included in this $9000.

President Manning: Well, the deficit arises from the fact that the prospective income of the Society is between five and six thousand dollars and the budget calls for something over $9000.

Dr. Willis: I meant, is the deficit included?

President Manning: No, sir.

Dr. Willis: It is not included?

President Manning: We haven't any deficit—

Secretary McBrayer: We had at the end of the fiscal year a deficit of $345, and that is provided for in the budget now pending.

Dr. Willis: That is included in this budget to take care of that?

President Manning: We didn't spend it. We didn't have the money to spend. In any event, as I gather, that theoretical deficit that appeared in the report of the auditor will be practically covered by a ten per cent payment which is in prospect from the funds that we had in the Page Trust Company. So that even the theoretical deficit has been or will be wiped out.

Secretary McBrayer: I believe I ought to explain (I have no authority to and if the Finance Committee says they didn't say it you will have to choose between us, or I will have to retract this statement) it is my opinion—I will put it that way—that the Finance Committee had in mind asking the Honorary Fellows to make a contribution. There are now 203 Honorary Fellows and, as you know, at the end of thirty years of consecutive membership you become an Honorary Fellow. I see here Dr. Rankin, Dr. Highsmith, Dr. Manning, and if I had a glass I could look in it and see myself—I believe those are all the Honorary Fellows that are in this room.

One of the Honorary Fellows was talking about this and I have a notion that he felt like he would like to make a rather large, or a comparatively large, contribution to this fund, himself. That is wholly telepathic, that part of it, and whether the Finance Committee when they have gone over the thing in the next month—they intend to have a meeting, I think, before a great while, the Finance Committee by themselves—will recommend that or not, I do not know. I do know that they are thinking about that and I imagine that all the Honorary Fellows here would be glad to do that. I don't think Dr. Manning ought to be asked to make a further contribution. He has already made a contribution of many hundreds of dollars in the work of the last year.

President Manning: Dr. McBrayer thinks we ought to vote on the report of the Finance Committee. The Finance Committee recommends that the budget be left to the Executive Committee to adjust when we know more exactly what the income of the Society is going to be. I will entertain a motion to that effect.

. . . A motion was regularly made and seconded to this effect. . .

Dr. Willis: Mr. President, I should like to say one thing.

I notice they said something about having the second meeting at two o'clock on the second day—

President Manning: I think we will take that up under a different heading. Just now we are dealing with the budget.

Those who are in favor of this motion please say, "Aye," opposed, "No." It is carried.

The other recommendation of the Finance Committee was to the effect that hereafter we should have the final meeting of the House of Delegates, the last meeting of the House of Delegates at two o'clock on the second day of the meeting rather than the evening of the second day, because so many of the delegates go home. That has happened practically every

time that I have ever been to a meeting of the Medical Society and some of these matters, such as the one we are now discussing, are matters of grave importance to the Society and should be acted on by at least a quorum of the House of Delegates. So the Committee recommends that the House of Delegates meet for their final session at two o'clock on the second day of the meeting of the Society.

What is your pleasure about that phase of it?

Dr. Willis: Mr. President, I move that we meet at twelve o'clock because of the fact that even by two o'clock a great many of the members have left. They get their lunch and leave immediately afterwards, and some of them leave even before lunch.

I am a member of another society which holds its meeting at twelve o'clock, and it has proven very effective.

President Manning: Unfortunately, Dr. Willis, at twelve o'clock on that second day we have the Conjoint Session of the State Board of Health and the Medical Society and if we call out of that meeting the delegates of the House of Delegates we will have perhaps a much smaller meeting than we have now.

That is the only objection I see to that motion. However, it is at the pleasure of the meeting.

Dr. J. M. Northington (Charlotte): I should like to ask if that hour couldn't be changed very readily.

President Manning: It has been going on for many years at that time. It is a tradition.

Dr. R. B. Davis (Greensboro): Mr. President, what about meeting after the President's Ball? They will all be here, then. (Laughter)

President Manning: If all the Presidents are like me, they will be very glad to meet. (Laughter)

Dr. Davis: They could meet for a little while either before or after the Ball.

President Manning: There may be some Presidents young enough to dance but most of them are past that point.

Dr. Davis: That would give us somewhere around twenty-four hours between the two meetings.

President Manning: I will entertain any motion you care to make.

Dr. Davis: The President's Ball is at nine o'clock, isn't it?

President Manning: Yes.

Dr. Davis: I move that we meet at eight o'clock on the evening of the first day of the convention.

Secretary McBrayer: How is that?

Dr. Davis: The first meeting of the House of Delegates is usually on Monday night, isn't it?

Secretary McBrayer: Yes.

Dr. Davis: That really isn't the first day of the North Carolina Medical Society Convention.

Secretary McBrayer: That meeting is provided for in the By-Laws, though.

Dr. Davis: I know it is. But then I was thinking of making a motion that the second meeting be held at eight o'clock the next night instead of waiting until the last night at eight o'clock.

President Manning: Do you make such a motion?

Dr. Davis: Yes, sir.

. . . The motion was duly seconded. . .

Dr. Dewett Kluttz (Washington): Mr. President, isn't there a provision in the By-Laws that any motion made at one meeting has to be tabled for forty-eight hours before it can be acted on? Is that right?

Secretary McBrayer: Twenty-four hours.

Dr. Kluttz: Twenty-four hours?

I second the motion that the meeting be held at eight o'clock on the first day of the Society convention.

President Manning: Is there any discussion of the motion? If not, those in favor—

Secretary McBrayer: Just one moment.

I don't know what the future Presidents and Executive Committees will want to do in the way of an evening meeting and dinner such as we had last night. Incidentally, I might say that 540 people sat down to that dinner and personally I feel—I give all the credit to Dr. Manning for that meeting last night—that that meeting was very much worthwhile.

If we should make this House of Delegates meeting an eight o'clock meeting we would probably not be able to get out of that in time for this dinner. I don't know how the program will be built next year but that ought to be taken into consideration, anyway.

Dr. C. C. Hudson (Greensboro): As a substitute for both motions, I move that we leave this matter to the Executive Committee in fixing the program to also fix the time for the various meetings.

President Manning: Do I hear a second to the substitute motion?

. . . The motion was duly seconded. . .

President Manning: I believe the order is that the substitute motion comes first.

Secretary McBrayer: Is that satisfactory to you?

Dr. Dewett Kluttz (Washington): Yes. I agree with Dr. McBrayer that it would probably be impossible to have it at eight o'clock on the first day of the meeting if the program is like it was this year. But I do think it should be held some time on that day.

President Manning: Dr. Hudson has moved and the motion has been seconded that we leave this question to the discretion of the Execu-

tive Committee. Is there any discussion of that motion? If not, those in favor of the motion will say, "Aye"—

Dr. J. M. Northington (Charlotte): Mr. President, I should like to suggest that this Executive Committee be instructed that it is the sense of this meeting that there should be some change made from the present order and the reasons given: that it is manifest that we can't get a real representation here of the State Medical Society, that we can only get a small minority of the delegates, and that those who stay for the meeting stay at a good deal of extra expense to themselves in various ways. State the reasons why this is being brought to them and just what the general discussion has been and ask them to take these things into consideration in arriving at their decision.

President Manning: If the motion carries the instructions will go with it, Doctor.

Dr. Dewett Kluttz (Washington): Mr. President, may I ask this: if there was anything that we wanted to put through that was suggested at that first meeting, and if that second meeting was held before the twenty-four hours were up, might not we get into difficulties? Wouldn't it be wise to modify that perhaps? The idea is that any motion that is put up or presented must be thought over and considered. If we had to wait twenty-four hours, that might mean that we would have to wait until next year to act on the proposition. Would that necessitate a change in the Constitution to change that provision of twenty-four hours between those two meetings?

President Manning: I assume it would, if it was new business.

Dr. Kluttz: That should be thought of, then.

Secretary McBrayer: That would be taken into consideration in stating the time, so as to come within that provision.

President Manning: Are you ready for the motion? All those in favor say, "Aye," opposed ,"No." The "Ayes" have it.

In accepting the report of the Committee on Cancer Control there was a section of that report about which some question has been raised and the matter was brought to our attention by Dr. Ivey. Someone was delegated to bring that particular section of the report up for reconsideration at this meeting tonight. In the absence of Dr. Ivey, I don't know whom he delegated, so I am going to call on Dr. McBrayer, who is familiar with the matter, to suggest what he had in mind.

Secretary McBrayer: Dr. Willis could perhaps cover the matter as well as anyone and I would suggest that you call on him.

Dr. Willis: Mr. President, Dr. Ivey did say something to me about it but I feel very reluctant to say anything in connection with this subject, as I have been rather prominently projected into some matters recently and I am going to ask that Dr. Highsmith who is also familiar with this say something on the subject.

President Manning: The Chair will recognize Dr. Highsmith.

Dr. Highsmith: Mr. President, I must confess that I was not here at the meeting of the House of Delegates when this question was brought up and I am unfamiliar with it except from hearsay and I would have to be made intelligent on the situation before I would know just how to act or what to say.

As I understand it from gossip, there was some misunderstanding about this movement. Some doctor by the name of Lucas, I believe, from New York City was to open up a cancer research office at Raleigh, North Carolina, and call it the Mother Station and then the offspring were to be located in the various counties. Just what that covers and what it means, I don't know, but just roughly, from what little I do know about it, and realizing what little we all know about cancer and the possibilities of various cures that have been advanced—we have seen a lot of them that went across the country to California to be cured that died on the way—it looks to me like we are dealing with a rather treacherous problem and that we should certainly get our bearings before we act.

We would have to know a good deal about a man to let him come to North Carolina and open up the gate and give him the key and get the various counties to coöperate with him. But I must say I have not been instructed along this line and I don't know just the backing and bearing of it.

President Manning: I don't believe that the House of Delegates meant to do more than accept the report. I don't think it intended to commit itself to any of the recommendations, certainly not this particular one. I think they just formally accepted the report, like you accept the report from any committee.

Dr. Highsmith: I would move then, if it is in order, that this matter be reconsidered and referred to the Executive Committee to thoroughly consider from every viewpoint and to act on it in keeping with their best judgment.

. . . The motion was duly seconded. . .

President Manning: Dr. Highsmith makes a motion that this matter be referred to the Executive Committee, with power to act, Doctor?

Dr. Highsmith: Yes.

Dr. Dewett Kluttz (Washington): Mr. President, I hate to get on my feet so much, but this was discussed in the meeting we had of the Radiological Society, yesterday, at which Dr. Ivey brought it up and, like Dr. Highsmith, I feel very hesitant about saying anything, but I think it is fraught with danger. It might not work perfectly, and I believe it would be well to investigate the matter thoroughly before we put our endorsement on it. It might not work out so well and then, again, it might be fine.

President Manning: Is there any further discussion?

SECRETARY MCBRAYER: Mr. President, I just want to say that I have read that part of the report referred to and I don't know why I didn't hear it when it was read the other night, but I don't remember having heard it. The reason I just read it is that perhaps eight or a dozen men came to me during the day to object to it. They felt, those that talked to me, that it might be pretty heavily loaded and that the things Dr. Highsmith refers to might turn out detrimental to the profession and the cancer work, and that it should be purely a private matter, etc., and that the motion to approve it should be reconsidered and the matter referred to the Executive Committee. And if the Executive Committee doesn't want to take any action on it after they have studied it they can hold it up until the next meeting of the House of Delegates so that we will have plenty of time to talk with various people who are interested in it perhaps and arrive at a conclusion as to whether it is really a wise and proper thing to do.

Dr. Highsmith, that was the idea I got from the people that talked with me.

PRESIDENT MANNING: Is there any further discussion?

DR. HIGHSMITH: I would move, then, that we reconsider this and refer it to the Executive Committee.

PRESIDENT MANNING: Does Dr. Highsmith's motion receive a second?

. . . The motion was duly seconded and voted. . .

PRESIDENT MANNING: We have some requests from Dr. Parrott to appoint certain committees. I will ask Dr. McBrayer to read this.

SECRETARY MCBRAYER: I will say it was intended, as I understood it, that this should be introduced at the Conjoint Session and after consideration they thought probably that was not the proper place and asked Dr. Manning to bring it up tonight.

I will say further that if we had money to pay the expenses of these committees I wouldn't have any objection at all to them but I wouldn't want to ask them to work for nothing.

"Resolved, That the Legislature of North Carolina should make an appropriation in the amount of not less than $350,000.00 to provide for and aid local health departments throughout the State to the end that every citizen of the commonwealth may have adequate health protection."

Number 2:

"Resolved, That the President of the State Medical Society be and he is hereby requested to appoint a committee of five, to be known as the Immunization Committee, whose duty it shall be to coöperate with the State Department of Health and to properly coördinate its activities in immunization work."

That "its" it seems to me refers to the State Department of Health, that is, coördinate the State Department of Health's activities. I don't

know who wrote this and I don't want to criticize their English but evidently that is what that means.

Number 3:

"Resolved, That the President of the State Medical Society be and he is hereby empowered to appoint a committee of not less than five or be authorized to continue as an official committee the present semi-official group to coöperate with and to aid the State Department of Health in coördinating services looking towards the reduction of maternal and infant mortality and the improvement of maternal and infant morbidity."

President Manning: I will say, for the benefit of those who may not be so familiar with it, that there has developed a good bit of friction and criticism of the State Board of Health in connection with the immunization program. In certain cities the Board of Health has been aggressive as it should be perhaps but it hasn't drawn any line between those who were able to pay for their own immunization and those who were not able to pay. That has resulted in some friction and some criticism and, as you may recall, I discussed this point in my message to the House of Delegates and recommended that such a committee be appointed for the purpose of working out some plan by which the immunization could be carried on satisfactorily with the practicing physicians and the health officer. I had talked the matter over with Dr. Parrott and as a matter of fact he suggested that as a solution of this problem. I recommended it conditionally on the Society being able to finance such a committee.

The second request here for a committee grew out of a conference called by the State Board of Health in Raleigh about two months ago, I think, with a group of general practitioners to consider ways and means of cutting down the maternal and infancy death rate. Dr. Johnson who was made chairman of that unofficial committee made his report to the House of Delegates on Monday night, and Dr. Parrott is asking for a continuance of either that committee or some committee from the Medical Society as a permanent committee on that phase of public health work. So this request from Dr. Parrott comes in this formal way to the House of Delegates.

My recommendations in both instances were conditioned on the ability of the Society to finance these committees.

I wanted to make that explanation. Do I hear any motion?

Dr. J. M. Northington (Charlotte): Mr. President, I didn't know that these matter were coming up before the Society. It seems to me it would be well to separate these two matters, as to whether or not we shall appoint one or the other or both of these committees.

Facts are stubborn things and they are often very disconcerting things but they may as well be faced, and whatever inferences may be drawn from what is found out is a secondary matter. I think, though, that this

should be done and I think this committee's activities should include all the functions that are contemplated in this first committee's activities.

Before making a motion on this matter I will say that I don't have the slightest question but that a committee could be found among this membership that would be glad to make a careful study into this matter, without presenting any bill to the State Society.

So I move you, sir, that such a committee be appointed.

PRESIDENT MANNING: Does Dr. Northington's motion receive a second?

. . . The motion was regularly seconded. . .

PRESIDENT MANNING: Is there any discussion of this motion?

SECRETARY MCBRAYER: Mr. President, I would like to suggest, if it meets with the approval of those present, that two and three of these resolutions be referred to the Executive Committee with power. I think it would give the incoming officers time to study the matter and find out just exactly what the State Board of Health had in mind, and probably also the Finance Committee could give some idea as to whether or not we would have funds with which to take care of the expenses. It seems to me that would be a better way to handle the matter, than to appoint a committee at this time.

Does that suit you?

DR. J. M. NORTHINGTON (Charlotte): I would much prefer my motion. I don't think they have any connection at all. They should be separated for action.

SECRETARY MCBRAYER: For the benefit of those present, I will say that the State Board of Health has worked out an immunization campaign for diphtheria and typhoid and they are asking the county medical societies to put on this campaign, and get whatever pay they can for it from the county commissioners, and their private patients.

I know at least one county that has agreed to do so and went before the board of county commissioners in regard to it. I don't know what action the county commissioners took but I think that the first thing that would be presented to this committee probably would be the working out of this plan or their reaction to the plan as it is already thought out at this time.

DR. NORTHINGTON: Mr. President, in that case I withdraw my motion and beg leave to bring it up again without any connection with the present matter, with the consent of my second.

. . . The seconder of the motion consented. . .

DR. C. C. HUDSON (Greensboro): I move you that that entire matter be referred to the Executive Committee with power to act.

PRESIDENT MANNING: Is Dr. Hudson's motion seconded?

. . . The motion was seconded. . .

President Manning: Any discussion? Those who are in favor of the motion—

Dr. Northington: Mr. President, I don't think that those things can be grouped all together. I think Dr. Hudson can make a motion if he wishes when I remake the motion, after separating these two matters, that the matters be referred to the Executive Committee but I don't think it can be voted as a group.

President Manning: You mean you want to separate the immunization committee from the maternity?

Dr. Northington: No, sir, the action of this committee, if it had been appointed according to my motion, would cover the immunization, and therefore I beg leave to withdraw my motion, and so far as the matters covered in the State Board of Health recommendation, if they are voted on, then we are through with them.

I wish again to introduce a resolution that all of these encroachments on private practice be inquired into.

President Manning: I take it your motion means then, Dr. Northington, that you wish a committee of the Medical Society appointed to investigate the conduct of the State Board of Health, is that it?

Dr. Northington: No, sir. The only thing I was inquiring into there was inasmuch as you said—the Chair said—that this matter of immunization involves somewhat of a discussion of the matter of private doctors immunizing; that that was one small element in the conflict—if you say so—as to whether or not certain things should be done by health officers or by private physicians. That was a small feature of the general aspect of the encroachment from various sources on private practice. I wish to embody that in the whole question. Now I withdraw my motion and beg leave to bring up my motion again after this matter is disposed of.

Secretary McBrayer: Dr. Hudson, suppose you include Numbers Two and Three in your motion.

Dr. Hudson: I include Numbers One, Two, and Three. (Laughter)

Secretary McBrayer: All right, that is satisfactory.

President Manning: Those who are in favor of Dr. Hudson's motion will please say "aye"; opposed "no."

The motion is carried.

Now, Dr. Northington!

Dr. Northington: I move you, Mr. President, that a committee be appointed to study and inquire into all of the encroachments and infringements on private practice in the State of North Carolina from whatever source, governmental or otherwise, and to report—this is a mere fact-finding committee—at the next meeting of the State Medical Society of North Carolina.

President Manning: Does Dr. Northington's motion receive a second?

. . . The motion was duly seconded. . .

PRESIDENT MANNING: Is there any discussion of the motion?

PRESIDENT-ELECT MCCAIN: That doesn't carry with it any financial obligation, does it?

DR. NORTHINGTON: None whatsoever.

PRESIDENT MANNING: Is there further discussion?

. . . The motion was put to a vote and carried. . .

PRESIDENT MANNING: We will now have the report of the Hospital Committee of which Dr. J. F. Highsmith is Chairman.

DR. J. F. HIGHSMITH: This is just a very short report that we make here to the House of Delegates:

The Committee on Hospitals does hereby unanimously endorse a state-wide non-commercial Group Hospitalization Plan as outlined by Dr. I. H. Manning, our retiring President.

Respectfully submitted,

J. F. HIGHSMITH, SR., *Chairman,*
Committee on Hospitals.

. . . A motion was regularly made and seconded and voted that the report of the Hospital Committee be adopted. . .

PRESIDENT MANNING: I think we have a communication from the North Carolina Hospital Association. Dr. Carrington!

DR. G. L. CARRINGTON (Burlington): No, sir, this was a committee similar as I understood it to Dr. Highsmith's, appointed on group insurance, not the North Carolina Hospital Association. It was a Medical Society committee, as we understood it.

PRESIDENT MANNING: I thought you told me you wanted to make a report from the Hospital Association that met in Charlotte the other day.

DR. CARRINGTON: No.

PRESIDENT MANNING: Then we will have the report of the Nominating Committee.

PRESIDENT-ELECT MCCAIN: Mr. President, before that comes up may I have the floor a minute?

It seems to me at this time it is exceedingly important for us to give a little more recognition to the Legislative Committee and I would like to see the Chairman of the Legislative Committee made ex officio member of the Executive Committee, if that meets with the approval of the House of Delegates. I don't know whether an amendment will have to be made to the By-Laws to that effect or what will have to be done, but I should like to hear the matter discussed.

PRESIDENT MANNING: Is there any discussion of this proposal of Dr. McCain's that the Chairman of the Legislative Committe be made an ex officio member of the Executive Committee?

DR. J. M. NORTHINGTON (Charlotte): I would like to have someone state just who constitute the Executive Committee at the present time.

President Manning: Well, it is provided for in the Constitution. Dr. McBrayer is more familiar with the Constitution than I am and I will call on him to answer your question.

Secretary McBrayer: Mr. President, the Executive Committee consists of the officers of the Society and the officers of the Society are stated to be the President, President-Elect, two Vice-Presidents, the Secretary-Treasurer, the Councilors and, if this motion is carried, it will include ex officio the Chairman of the Legislative Committee.

Dr. Northington: That was my impression but I wasn't certain.

Dr. R. B. Davis (Greensboro): Mr. President, I heartily agree with Dr. McCain about the Legislative Committee. That is one of the, if not the, most important protective committee that this Association has and the Chairman knows not which way to turn when things are going on in Raleigh unless he can come back to the Executive Committee. If he is a member of the Executive Committee he will not feel any hesitancy in meeting with that Committee more often and injecting his ideas and reporting what is contemplated in the way of legislation if he can get any news in advance.

I have been called all kinds of a politician, but I will frankly say, and I believe those who have studied the Legislature will agree, that we are in the hands of the Philistines and we must go there to protect ourselves.

I feel that the Chairman, therefore, of the Legislative Committee is a very important figure in this Association and I would like to second Dr. McCain's motion.

President Manning: Dr. McCain, as I understand, you made a motion to that effect?

President-elect McCain: I didn't make a motion.

Dr. Davis: I will make a motion to that effect.

. . . The motion was seconded by Dr. Northington. . .

President Manning: Dr. Davis makes a motion, then, that the Chairman of the Legislative Committee be made an ex officio member of the Executive Committee. Is there any discussion?

Dr. W. S. Rankin (Charlotte): How many standing committees have we, Mr. Chairman?

President Manning: Standing Committees by the gross.

Dr. Rankin: Well, the Legislative Committee is one of a number of standing committees?

President Manning: Yes, sir.

Dr. Rankin: The only question in my mind is whether we will be establishing a precedent for the Executive to include chairmen of other committees.

Secretary McBrayer: I don't think that necessarily follows at all. Those committees are entirely different.

PRESIDENT MANNING: It is in the hands of the House of Delegates. Are you ready for the question? Those in favor of the motion will say, "Aye," opposed, "No." The "Ayes" seem to have it and the "Ayes" have it. The motion is adopted.

We will now have the report of the Nominating Committee.

. . . Secretary McBrayer then presented the report of the Nominating Committee as follows:

To the Members of the Medical Society of the State of North Carolina:

Your Nominating Committee elected at the first meeting of the House of Delegates on Monday, April 30th, at eight p.m., beg leave to report the following recommendations:

For President-elect—P. H. Ringer, Asheville
For First Vice-President—J. F. McKay, Buies Creek
For Second Vice-President—William Allen, Charlotte.
For Secretary-Treasurer—L. B. McBrayer, Southern Pines)
(3-year term)

FOR COUNCILORS (3-YEAR TERM)

1st District—C. B. Williams, Elizabeth City
2nd District—K. B. Pace, Greenville
3rd District—J. F. Robertson, Wilmington
4th District—E. S. Boice, Rocky Mount
5th District—Roscoe McMillan, Red Springs
6th District—W. M. Coppridge, Durham
7th District—Forrest Houser, Cherryville
8th District—Roy Mitchell, Mt. Airy
9th District—J. R. Terry, Lexington
10th District—G. W. Murphy, Asheville

MEMBER OF MEDICAL SOCIETY FOUNDATION FOR 3-YEAR TERM

Reid Patterson, Charlotte

OBITUARY COMMITTEE

C. A. Julian, Greensboro
J. B. Cranmer, Wilmington
J. F. Abel, Waynesville

COMMITTEE ON LEGISLATION

B. J. Lawrence, Raleigh
T. W. M. Long, Roanoke Rapids
J. F. Highsmith, Fayetteville

MOORE COUNTY MEDICAL SOCIETY MEDAL

A. H. McLeod, Aberdeen
Deryl Hart, Durham
Wm. DeB. MacNider, Chapel Hill

COMMITTEE ON PRINTING

L. B. McBrayer, Southern Pines
J. W. Dickie, Southern Pines
E. C. Judd, Raleigh

COMMITTEE ON HOSPITALS

J. F. Highsmith, Fayetteville
I. M. Proctor, Raleigh
Foy Roberson, Durham
Jas. W. Davis, Statesville

DELEGATES TO AMERICAN MEDICAL ASSOCIATION

M. L. Stevens, Asheville (2-year term)
H. A. Royster, Raleigh, Alternate

DELEGATES TO VIRGINIA MEDICAL SOCIETY

C. T. Smith, Rocky Mount
B. C. Willis, Rocky Mount
R. B. Wilkins, Raleigh
F. H. Garriss, Lewiston

DELEGATES TO SOUTH CAROLINA MEDICAL SOCIETY

J. B. Sidbury, Wilmington
A. G. Brenizer, Charlotte
I. T. Mann, High Point

DELEGATES TO NORTH CAROLINA DENTAL SOCIETY

H. B. Hiatt, High Point
H. B. Ivey, Goldsboro
R. S. Beam, Lumberton
W. B. Dewar, Raleigh

Place of 1935 Meeting—Pinehurst.

The Committee recommends that the President and Secretary be empowered to appoint Chairman of Committee on Arrangements.

(Signed)

J. F. Highsmith, *Chairman*
K. P. B. Bonner, *Secretary*

Dr. W. S. Rankin (Charlotte): I move adoption of the report of the Committee.

. . . The motion was duly seconded. . .

President Manning: Is there any discussion?

. . . The motion was put to a vote and carried. . .

President Manning: A motion for adjournment of the House of Delegates is in order.

Dr. J. M. Northington (Charlotte): I make such a motion, Mr. President.

. . . The motion was duly seconded. . .

Dr. R. B. Davis (Greensboro): Mr. President, before we adjourn isn't it necessary to elect a member of the Nurses Examiners Board from this body?

Secretary McBrayer: That will come before the General Session which will convene immediately upon the adjournment of the House of Delegates.

President Manning: I haven't put the motion to adjourn. A motion to adjourn is always in order. However, if this is a matter that should come before the House of Delegates—

Dr. Northington: Dr. McBrayer says it should come before the General Session.

Dr. Davis: I move we adjourn, Mr. President.

. . . The motion was seconded. . .

President Manning: A motion is made that the House of Delegates adjourn.

. . . The motion was put to a vote and carried, the meeting thereupon adjourning at eight fifty-five o'clock, sine die. . .

PROCEEDINGS

GENERAL SESSIONS

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

CAROLINA HOTEL

PINEHURST, N. C.

APRIL 30 AND MAY 1 AND 2, 1934

FIRST GENERAL SESSION

MAY 1, 1934

The First General Session of the Medical Society of the State of North Carolina convened in the Ball Room, Dr. W. C. Mudgett, Chairman, Committee on Arrangements, presiding.

CHAIRMAN MUDGETT: The North Carolina Medical Association will come to order.

As chairman of the Committee of Arrangements I think that your program covers everything. We have no special announcements to make.

We will now listen to the presentation of the President's Jewel to Dr. Manning by Dr. Paul McCain, President-elect.

DR. P. P. MCCAIN (Sanatorium): Members of the North Carolina Medical Society, Friends: We drafted Dr. Manning as President of the North Carolina Medical Society during one of the most critical years of its history, and his tireless energy and his splendid accomplishments have more than proved the wisdom of our choice.

So, Dr. Manning, it will give a particular pleasure to every member of the North Carolina Medical Society for you to wear this jewel as a token of our appreciation of your services and our love and admiration for you. (Applause)

PRESIDENT MANNING: Members of the Medical Society: It has been a great privilege to serve the profession of North Carolina. I have had but two policies; the first and foremost has been to see, if I can, that the doctors of North Carolina get a square deal; the second is that the medical profession of North Carolina take the leadership in the solution of the medical problems of this state.

This jewel is a mark or it means to me a mark of the honor conferred and the opportunity to try to accomplish these objectives.

I thank you. (Applause)

CHAIRMAN MUDGETT: Without further introduction you will listen to the President's address. (Applause)

PRESIDENT'S ADDRESS

I. H. Manning, M.D., F.A.C.P., Chapel Hill

Members of the Medical Society, Ladies and Gentlemen:

The Medical Society has done me a great honor. I have had the pleasure and privilege of knowing a great many doctors in North Carolina and of learning something of the practice of medicine in city, town, and country, each with its own problems. It has been my fate to spend a greater part of my professional life in the class room, but I have looked out of its windows, sometimes enviously, at those of you who are doing the real work of the profession. Your problems are interwoven with the future of the practice of medicine, and one who loves his profession, as I do, must view them seriously. They have an absorbing interest for you and those who are to come after you. They bring an obligation and to me an irrepressible desire to help in their solution. I wish to thank you most sincerely for the honor you have done me and the privilege you have given me.

To a profession whose roots are sunk in Egyptian and Greek mythology, whose code of ethics is written in the Oath of Hippocrates, fifty years are as yesterday, yet in the past half-century medicine has emerged from superstition and empiricism into the realm of a true science. Modern medicine, as we are pleased to call it, began with Lister, Pasteur, Kock, and their associates who established the bacteriological origin of the infectious diseases and the principles of preventive medicine. The significance of these familiar events in the history of medicine and their far-reaching consequences on plant, animal and human life are incalculable. They have brought unfailing weapons of defense against the indefatigable enemies of the race, and have opened multiplying trails which have been followed with miraculous success. With the elimination of wound infections the surgeons have been emboldened until Pluto, the god of hell, might have better reasons to complain of the decreasing number of daily arrivals. The internest, the general practitioner and the health officer have had their armamentariums equipped with remedies and tools of certain value. The debt to Aesculapius grows tremendously.

In spite of its ancient history and its recent accomplishments, the medical profession looks eagerly to the future. The miracles of today are forgotten in the search for the miracles of tomorrow. There is much of which we must still plead ignorance. There is still enough of uncertainty, of hazard in the practice of medicine to test the metal of any man. There are still enough of mistakes to keep us humble and to stimulate us in the search for new knowledge and new methods of fighting disease and discomfort. We look forward with enthusiasm to tomorrow with its crowning successes.

There are, however, problems of a different character which have come largely as a result of our accomplishments. So much may now be done to make life secure, comfortable and happy in its medical aspects, that the demand has come that all people of every class and clime must

have the full benefit of all that medical science has to offer. Medical care with all of its possibilities for all people, rich and poor alike, is a real an insistent problem. Neglected sickness and unrelieved suffering cannot be tolerated in an enlightened, civilized community. The social conscience becomes more sensitive as civilization advances. The civic conscience, however, is lagging. It has not awakened to the realization that medical care is an economic problem and a civic responsibility. It is to this phase of the problem that I wish to direct your attention.

The practice of medicine is an ethical business. There are approximately one hundred and fifty thousand physicians in this country and two thousand of them in this State, a large majority of whom are entirely dependent upon the practice of medicine for a living. So long as it is kept within the bounds of an ethical business those who practice medicine do not have to apologize for making a living out of it. Nothing is further from my thought than the implication that making money is or should be its primary purpose. In an experience of thirty years with medical students I have never heard money-making given as a motive for studying medicine, and I resent the intimation too often made by non-professional people that the physician or surgeon who puts a price on his services is commercializing his profession. When the practice of medicine ceases to be an ethical business, it will cease to appeal to men of character and ambition. The more this fact is emphasized, the more quickly will the public and the profession find common ground on which to work out the problem of medical care. I am convinced that many leaders of public opinion are deliberately playing on the altruistic concept of the practice of medicine. We need no more convincing evidence than the attitude of the agencies of Federal Relief who have assumed that the medical profession will give free service to the unemployed, and the Workmen's Compensation Law which provides medical care for the injured employee on the assumption that the physicians will give their services at greatly reduced rates. The problems of medical care are intimately related to the business of practicing medicine and they will not be solved until this relationship is recognized.

On the other hand it is the obligation of the medical profession to see to it that the practice of medicine is an ethical business. The congestion of physicians in the cities and towns is resulting in keen competition for business and professional success, and the struggle for business, for existence, is becoming strenuous, if not desperate. Our code of ethics is seriously threatened. A physician who sets out to get business by unethical practices, or makes unethical charges does great damage to his profession, and he should think first of his profession. The profession needs to examine critically its own business structure, to set up its own code of fair play. There is no group, lay or professional, who give more freely of their services, but the American people do not want charity, they prefer to pay their bills, but when these bills are so large that payment means bankruptcy, charity becomes a necessity. Can we not

adjust our business so that medical care (I mean medical care in all of its aspects) can be brought within the reach of the average citizen who desires to pay his bills? To quote from Henry S. Pritchett: "To train up a generation of physicians or dentists, or nurses, whose service is so costly as to be out of reach of the self-respecting man of modest means who desires to pay his way, would be a dismal mistake in civilization."

State and socialized medicine have been proposed as alternate plans for medical care, and both have been condemned by the medical profession for reasons entirely familiar to this audience. The profession therefore assumes the obligation of finding some plan that it is willing to accept. Thus far nothing better has been suggested than the status quo—a status that places the burden squarely on the shoulders of the profession. The issue is, I think, clear and cannot be evaded.

Every item of medical care has become tremendously costly. Modern medical practice demands highly trained technicians and costly equipment. Nurses trained to the art and technique of making sick people comfortable and acting in loco docturis; laboratory technicians trained to apply the multitude of exact tests demanded in a thorough study of our patients; expensive synthetic drugs and highly trained pharmacists to dispense them; hospitals that have taxed the ingenuity of the architects to make them safe, comfortable and convenient, so that we may apply the highest degree of medical science and skill under the most favorable conditions. They may be used frequently unnecessarily, but they are often indispensable and therefore they must be available. Because of them, the business of practicing medicine has acquired an overhead that threatens to absorb the profits.

The practice of medicine has become highly institutionalized, probably more so than necessary, but by common consent people who are sick enough to be in bed, certainly those who are seriously ill, should be in hospitals. No home, however well appointed, offers the same advantages. By preference, at least, medical care, except for the mildly sick, is becoming centralized in the hospitals. The advantages to both the physician and sick are obvious. Therefore, in any comprehensive plan for medical care of the people, rich and poor alike, but especially the poor, adequate hospital facilities are essential. *In North Carolina there are less than six thousand beds in general hospitals and more than three million people.* In spite of this relatively small number of hospital beds, there has been a progressive increase in the number of beds unoccupied until in 1933 the unoccupied beds amounted to fifty per cent of the total. Many people who were in need of hospital service were unable to pay for it. *It is folly to think of adding more hospital beds until we learn to use those now available.*

It is interesting to note that more than half of the people of North Carolina live on farms, and I am informed that the average income per farm family in 1931 was $650 gross. If we add the three hundred thousand employed in industry and the one hundred thousand engaged in domestic

service, it is safe to say that sixty per cent of our people have incomes of less than one thousand dollars per family. The average school teacher's salary in North Carolina in 1934 will be less than five hundred dollars, (to be exact $498), and it is estimated that after paying for board and lodging for the year, she will have not more than one hundred dollars to pay for all other purposes. If, therefore, the average income per family, or per responsible individual is a safe guide, North Carolina is a wide field for medical missionaries. We know, however, that many frugal families pay their bills without sacrificing the necessities of life. Never-the-less the incident of hospital service presents a serious problem to a very large number of the people of this State, and it deserves the careful consideration of the profession.

There is still another side to this problem. *Under our present system the hospitals absorb a large part (from 50 to 90%) of the money available for medical service, and the physicians and surgeons go unpaid.* It would be interesting and instructive to know in terms of dollars the value of the free service given by physicians and surgeons to the sick in hospitals. *I will hazard the opinion that it is the equal of the contributions made by philanthropists and donations from public funds and charitable organizations combined. For this service they have the privilege of hospitalizing their private patients who pay full price for all services, and often there is nothing left. I maintain that such a system is grossly unfair to the medical profession.* It would be, therefore, manifestly to the advantage of both the hospital and the physician to find some way of reducing the cost of hospital service to the individuals who need it. It is far more convenient to give medical service to the indigent in hospitals than indigents housed in settlements or on farms.

I think we may assume that during the stress of the past four years the cost of operating the hospitals has been reduced to the lowest figures consistent with creditable service. The cost per hospital day has become fairly uniform and stable. *The financing of the hospitals, the real crux of the problem, has not been solved.* The sources of hospital income are (1) from patients, (2) from endowments, donations from public funds and charitable organizations, and (3) hospitalization insurance. *If our object is to reduce the cost of hospital service to the individual, the income from the patient should be used to make up the deficit and no more. The owners of private hospitals should be satisfied if their operative budgets are balanced without assessing their fees for medical service.* The incomes from endowments and donations from individuals are beyond control. In the past they have been generous, but for the moment and probably for many years they are uncertain and cannot be counted among the probable sources of income. In this respect North Carolina is more fortunate, and *I wish to take this occasion to acknowledge the obligation of the medical profession to the Duke Foundation,* in this connection particularly to the Hospital Division. *The contributions from this Fund have been of tremendous help in financing many hospitals,* especially in

recent years, enabling many of them to keep their doors open when otherwise they would have been closed. *The newly constructed hospitals to which this Fund has so largely contributed, are models of small hospital construction and operation. They are fitting memorials to a great philanthropist.*

The appropriations from public funds should be sufficient to pay for the hospitalization of the indigent at an agreed upon daily charge. It is unwise, in my judgment, to accept a blanket sum, unless it is liberal, to pay the cost of hospital service of those for whom the public should be responsible. *The blanket appropriation leads to the abuse of hospital privileges and an attempt to interfere with hospital policies by political groups.*

Hospitalization insurance, which is now beginning to gain a foothold among our people, needs more careful consideration, not only as a means of providing for the exigencies of sickness, but in stabilizing the incomes of our hospitals. The theory upon which hospitalization insurance, as all other insurance, is based, is that *a small annual fee paid by a large number of people will pay the hospital bills of the relatively small number of people who will require the service during the year.* Thus the actuarial data obtained by the American Hospital Association, the State Charities Aid Association of New York and the Cleveland Welfare Federation which formed the basis of a plan presented by the Council of the Greater Cleveland Hospital Association, indicated that in cities like Cleveland there will be an average of 850 hospital days per thousand members per year,—in round numbers one hospital day per person per year. At the usual charge of $4.50 per day for ward service and $6.00 per day for semi-private room service, an insurance rate of $7.00 and $9.00 respectively per year will be sufficient to cover all costs and allow a safe margin for unforeseen demands. (a) The usual practice of commercial companies is to set aside six dollars per year for ward service per member and three dollars and seventy-five cents for administrative expenses and profits. A charge of $9.00 a year or 75c per week seems to provide abundantly for ward service and $10.00 a year for semi-private room service. A somewhat similar plan, the so-called Baylor Plan, has been in operation in Texas for a number of years and has worked out satisfactorily. The actuarial data seems now to be sufficient to predict with considerable safety the income from this source.

Thus far, the beneficiaries of this plan has been limited to groups of employees, the reason for which is that collections are by deductions from the pay checks and inexpensive. Such limitations, however, are largely artificial, and there is no reason why any group might not organize to pay its installments. *As a means of providing hospital service for a large group of people in moderate circumstances and stabilizing the incomes of hospitals favorably located, the plan has succeeded, and it has been approved in principle by the American Hospital Association.*

The most serious objection is that in the hands of lay organizations it becomes a form of commercialized medicine and the primary purpose is lost sight of in the desire for profits, and both the people and the hospitals become victims of a "racket." Such an objection may be avoided by keeping the business under the control of the hospitals. The North Carolina Hospital Association can very well afford to employ an active organizing and selling agent, set up a credit in each of the member hospitals in proportion to the number of beds, and control hospitalization insurance in North Carolina. They will have little to lose and much to gain.

On its face hospitalization insurance is a profitable business, and I feel is definitely on its way. The conservative, provident element of our people will take advantage of an opportunity to protect itself as far as possible from the embarrassing exigencies of sickness, and the hospitals need to tap more stabilizing sources of income. It will be, if it is not now, a question whether the medical profession will permit lay business organizations to absorb and operate hospitalization insurance for their own profit and therefore add substantially to the total cost of medical care, (b) or whether the profession will operate it for the benefit of hospitals (and indirectly for its own good), and keep the business within ethical bounds. (I learn on very good authority that a very large insurance company is planning at this moment to launch a campaign for this business.) (c) With the hospitals adequately financed and hospital costs reduced to the lowest level for the individual, one of the important factors in the cost of medical care is taken care of and a beginning of the solution of the whole problem is made.

Sickness or health insurance has been a failure from every point of view, and I do not believe any organization will have the temerity to undertake it. Medical service for the mildly sick indigent can be provided through organized clinics supported by the public. In any event the community should realize its responsibility, and if the community will accept the responsibility in good faith, the medical profession will coöperate to the fullest extent. It has never failed to do its part when there was no attempt to coerce.

With the demand for medical care for all in need therefore growing more insistent, with the nations of the world, including our own, involved in irrepressible socialistic movements, with kings, presidents, dictators and public officials of all ranks turning a sensitive ear to the popular voice, governmental or socialized medicine is a real danger. We are having forerunners of it through the Civil Works Administration, the industrial commissions, boards of health and industrial communities, and none of it is in the interest of the medical profession nor to the best interests of the people. It is folly, however, to imagine that 150,000 physicians, disorganized and rampant with individualism, can stem the tide of a movement supported by one hundred and twenty million people. Inability to organize and to hold together as a political unit, indifference or inertia in the face of impending catastrophy, reactionary to definite

social movements, and with no definite, concerted effort to guide public opinion in channels of sound medical policies, we are heading for disintegration or governmental subsidy. In drawing this grewsome picture I am making an appeal for an active leadership in the solution of medical problems, for harmony within our ranks, for unity of purpose, for the progress and perpetuity of our professional ideals.

Dr. N. C. Daniels (Oxford): Mr. President, the Society will join me, I am sure, in commending the strong, sane, and scholarly address we have just listened to. Our President has handled in the most efficient and in the clearest words the grave problems which are now confronting us. I don't believe I have known of any presiding officer of this Society who has met these problems with such vigor and with such frankness, face to face.

I therefore move that a committee of three be appointed to consider the able address of the President and to report on some future occasion during this meeting.

. . . The motion was regularly seconded and carried. . .

Secretary McBrayer: Dr. McCain, will you appoint that committee of three? I would suggest that you appoint the same committee that we appointed last night.

President Manning: Next in order is the report of the Committee on Moore County Medical Society Medal and Presentation of the Medal for the best paper presented at the last meeting. Dr. A. H. McLeod is chairman of that committee. Other members of the committee are Doctors Deryl Hart and William deB. MacNider. Will Dr. McLeod come forward?

Dr. A. H. McLeod: Will Dr. Sloan come forward? Is Dr. J. R. Adams here? Evidently, he is not.

The Committee on the Medal for the best paper presented at our last meeting have given much thought and consideration to their duties. The papers were so fine that we found difficulty in deciding on the best one. So the committee decided to award two medals and one of these goes to Dr. H. F. Sloan of Charlotte for his paper on cataract, and the other to Dr. J. R. Adams, also of Charlotte, for his paper, "Hypo-Glycaemia in Children." (Applause)

President Manning: As the next order of business I wish to recognize for a moment Dr. Wilburt Davison, Dean of the Duke Medical School.

Dr. Wilburt C. Davison: Members of the Society: Dr. Manning asked me to take just a moment to speak of the great loss which all of us suffered yesterday in the death of Dr. William Henry Welsh. He was born in 1850, a year after Osler's birth. He graduated from Yale and went abroad to study. He brought back to this country the advances in modern medicine which Dr. Manning spoke about this morning. He started the modern era with which all of us are familiar. He had been ill for the past year with a carcinoma of the prostate. I saw him about

two months ago. He felt then that life couldn't last very much longer, but he was keenly interested in everything right up to the end, and thousands of us never made any decision without first talking to him. He has been a great influence not only on the scientific side of medicine but I think he has shaped the lives of many physicians, former students of his, throughout this country. The announcement of his passing is in the *News and Observer* of this morning.

PRESIDENT MANNING: Dr. C. R. Sharpe will come forward.

DR. C. R. SHARPE (Lexington), Chairman of Obituary Committee: Mr. President, Fellows of the North Carolina Medical Society, Ladies and Gentlemen: Aladdin, you will remember, found a lamp. He soon discovered that it wasn't an ordinary lamp for no other use than to be filled with oil and lighted. Aladdin's lamp was a magic lamp. When he rubbed it a genie appeared and brought him gold, jewels, beautiful palaces, and anything else he asked for.

C. M. Van Poole also found a lamp. It too was a magic lamp. Its magic was the human magic of friendliness and kindness. He used that magic and built for himself a lofty place in the hearts of those with whom he came in contact. He filled his lamp with oil, the oil of study and hard work, lighted it with the fire of enthusiasm, and with it went forth to serve.

Aladdin's fabled lamp gave riches and power to one man. C. M. Van Poole's lamp was a light of hope to hundreds of suffering men and women.

I stand here today not to take his place but, in his stead, to read this list of our number who have died since we last met. This list is correct and up-to-date. There are probably one or two whose names do not appear here. The following is a list of those who have died since we last met:

NORTH CAROLINA DOCTORS WHO HAVE DIED DURING THE YEAR

Dr. Charles E. Adams (Honorary Fellow) ..... Gastonia
Dr. Claude Alvis Adams (Honorary Fellow) ..... Durham
Dr. M. R. Adams (Honorary Fellow) ..... Statesville
Dr. M. T. Adkins ..... Durham
Dr. H. E. Austin ..... Smithfield
Dr. John Bynum (Honorary Fellow) ..... Winston-Salem
Dr. Benj. Franklin Cox ..... Palmerville
Dr. J. L. Edgerton (Honorary Fellow) ..... Hendersonville
Dr. W. E. Edwards ..... Spring Hope
Dr. Roswell E. Flack ..... Rutherfordton
Dr. Solomon Spainhour Flynt ..... Rural Hall
Dr. Thos. M. Green ..... Wilmington
Dr. R. Glenn Grose ..... Harmony
Dr. George Norfleet Harrell ..... Grimesland
Dr. Samuel Newbern Harrell ..... Tarboro
Dr. Fletcher R. Harris (Honorary Fellow) ..... Henderson

Dr. L. O. Hayes ..... Fremont
Dr. Mark T. Hickman ..... Hudson
Dr. C. N. Hunter ..... Laurinburg
Dr. Thos. M. Jordan (Honorary Fellow) ..... Raleigh
Dr. Abram G. Jones (Honorary Fellow) ..... Walnut Cove
Dr. Henry Herman Kapp (Honorary Fellow) ..... Winston-Salem
Dr. Richard Leon Kendrick ..... Elizabeth City
Dr. George Kernodle ..... Burlington
Dr. W. K. Lane ..... Goldsboro
Dr. R. E. Lee ..... Lincolnton
Dr. Geo. W. Lewis (Honorary Fellow) ..... Wilson
Dr. Samuel Harley Lyle (Honorary Fellow) ..... Franklin
Dr. L. E. McDaniel ..... Jackson
Dr. John M. Manning (Honorary Fellow) ..... Chapel Hill
Dr. B. D. Marshburn ..... Selma
Dr. S. A. Moir ..... Francisco
Dr. Harris R. Moore ..... Burlington
Dr. James D. Nisbet ..... Charlotte
Dr. A. L. Petree ..... Greensboro
Dr. Milas B. Raymer ..... Winston-Salem
Dr. Charles R. Reaves ..... Greensboro
Dr. Willard Filmore Robinson ..... Mars Hill
Dr. L. R. Salmons ..... Winston-Salem
Dr. Thomas M. Sloan ..... Newton
Dr. Whitnell Pugh Small ..... Washington
Dr. John W. Speight ..... Washington
Dr. Thos. Stamps (Honorary Fellow) ..... Lumber Bridge
Dr. W. C. Steele ..... Mooresville
Dr. Henry D. Stewart (Honorary Fellow) ..... Monroe
Dr. Malcolm McInnis Tatum ..... Mt. Olive
Dr. John C. Twitty ..... Rutherfordton
Dr. Chalmers M. Van Poole (Honorary Fellow) ..... Salisbury
Dr. Leon Watson ..... Sanford

Dr. Sharpe: Now, will you all stand?

As the world pays honor to the Unknown Soldier, we now pause to yield the tribute of passing thought to these our fallen comrades who neither for the plaudits of the multitude nor praise from the elect went forth giving themselves in unselfish service until one day the summons came for each to take his chamber in the silent halls of death.

I am going to ask the President to sound the gavel. At the sound of the gavel we are going to bow our heads and stand in silence for one minute, at the expiration of which time the gavel will again be sounded, which will signal the conclusion of this memorial exercise.

. . . The members stood for one minute with bowed heads as a tribute to those members who died during the year. . .

Dr. Sharpe: I should like to ask those who have eulogies for any of these who have gone please hand them to Dr. McBrayer and they will be published in the Transactions.

DR. CHARLES E. ADAMS, Honorary Fellow

Gastonia, June 9.—Funeral services for Dr. Charles E. Adams, 79, prominent and highly respected Gaston County physician who died at his home here early today after a heart attack suffered several days ago, will be held at 10 o'clock tomorrow morning at the First Presbyterian Church.

The pastor, Dr. J. H. Henderlite, will officiate at the funeral, and interment will be in the family plot in Oakwood cemetery. Active pallbearers will be W. Speight Adams and William E. Adams of Charlotte; Albert Adams of Davidson; and R. Harvey, Ed C., and Thomas C. Adams, all of Gastonia. Honorary pallbearers will be elders of the First Presbyterian Church, of which for many years Dr. Adams was a loyal and active member.

Surviving Dr. Adams are one brother, John H. Adams, one sister, Miss Emily Adams; and two children, Miss Johnsie Adams and Lacy Adams, all of Gastonia.

BORN IN YORK COUNTY

Dr. Adams was born in York County, S. C., at the old Adams ancestral home, November 30, 1854, the son of Dr. and Mrs. William E. Adams. His father was a practicing physician, and through association and study with him the son got much of his early medical training. His great-grandfather, William Adams, was one of the volunteers at the Battle of Kings Mountain in 1770.

Dr. Adams studied at the Louisville Medical School, and was graduated from the University of Maryland School of Medicine in 1878. He practiced with his father in York County for five years, and in 1883 moved to Gastonia, where he had practiced his profession for more than 50 years, remaining active until his death.

On April 15, 1890, Dr. Adams was married to Mrs. Martha Jane McLean Adams, widow of Dr. Robert Adams.

For more than half a century of his practice, Dr. Adams served many people all over Gaston County. Next to his home and family, Dr. Adams' dearest interests centered about the church. He had been ruling elder in the First Presbyterian Church for many years, and for 25 years was superintendent of the Sunday School.

Organized and now flourishing churches have sprung from Sunday School centers started by Dr. Adams in the past as mission points.

Dr. Adams had been closely identified with all the religious, civic, and business interests of the community during all his long residence here. His death is mourned by a veritable multitude of friends in all sections of the country.

DR. CLAUDE ALVIS ADAMS

By Lyle S. Booker, M.D.

Claude Alvis Adams was born in Wake County, North Carolina, son of J. P. H. and Fidelia Yates Adams; he died of a tumor of the pancreas at his home in Durham, N. C., age 62.

At the age of 20 he received the degree of Doctor of Medicine from the College of Physicians and Surgeons of Baltimore.

After practicing at Aberdeen for a few years he moved to Durham in 1899, since which time, over a period of 42 years of unremitting effort, he served his day and time as few have ever done. A life-long general practitioner, a member of the Old School, he loved to make visits to the homes of his patients.

Probably no North Carolina doctor of Dr. Adams' time has done as much hard work or has seen as many patients. He was a real family doctor. He was so completely absorbed in his work that he never had a vacation in his whole professional life.

Dr. Adams was an active member of the Baptist Church, and the Masonic order, exemplifying his religion and Masonry in a high degree of service, sacrifice and love.

In the year 1894 he was united in marriage to Miss Mattie Moye, daughter of Judge and Mrs. A. W. Moye, of Cary, N. C., who with two children, Dr. Claude A. Adams, Jr., of Durham, and Mrs. Sam H. Lee of Monroe, survive him.

Dr. Adams became a member of the State Medical Society in 1901, and was an Honorary Fellow. He was also a member of the Southern Medical Association, and at the time of his death was medical director of the Home Security Life Insurance Company of Durham.

His life work was one of service to the suffering. He loved his profession.

DR. MINOR REVERE ADAMS, Statesville

Honorary Fellow, Councillor of Ninth District

By Thomas E. Anderson, M.D.

After a half century responding to the wearing, exacting, changing demands of the practice of medicine, Dr. Adams heard the voice of release, "It is enough. Come up higher." He was of a most industrious nature and was committed heart and soul to his loved profession. He was born in Cool Spring Township, Iredell County, North Carolina, in 1853, hence was on the verge of his eightieth year. And like Moses his eye was not dimmed nor his physical strength but little abated. The end came suddenly on the afternoon of Saturday, May 27, 1933, the relative cause being angina pectoris which seems to be especially hospitable to doctors. This was a surprise to his friends as he had never exhibited any heart symptoms.

Dr. Adams on reaching the first round of manhood's estate elected for his life work medicine and to that end repaired to the University of Maryland and received his degree of M.D. from that school in 1878. Coming back to his ancestral home in Iredell County, he began his work there and remained there for some two or three years. In 1881 he was offered the place of physician to the Ore Knob Copper Mine in Ashe County which he accepted and held for three years. In 1885 he returned

to his native heath and located in Statesville, N. C., where the chief work of his life was done. Diligent and untiring in his devotion to his clients he won the hearts of all. Nature had fitted him with a most admirable and enviable temperament which bound him to his friends with hooks of steel. He had a genial smile and kind words for all. Love was the sign in which he conquered. This was the corner stone on which he builded. His resources in medicine were ample, promptly realizing that the patient wants relief and gives little concern to the finer, more metaphysical refinements of medicine.

Dr. Adams brought the focus of his mind to therapeutics wherein is laid down the cures for human ills, gathered by all waters and nurtured by all the ages, and he was known and recognized as a resourceful physician.

In addition to medicine, he was acutely alive to all the activities of the civic life of his town and connected with and on many of the boards of the manufacturing interests herein engaged. And best of all he was not indifferent to all the causes involving the spiritual needs of his own race. To his church and all her interests he was deeply alive, for many years one of the ruling elders of his church. Truly he had made the wise choice of seeking first the Kingdom of God and his righteousness and all the time reaped the benefits promised and adhering.

Servant of God, well done, rest from thy loved employ.
His life was a benediction to his time.
May you sleep well, my brother, and joyous be your waking.

DR. MINOR REVERE ADAMS

Honorary Fellow, Councillor Ninth District

By James W. Davis, M.D.

As one to whom the right hand of fellowship was first extended by Dr. Minor Revere Adams, it is my privilege and pleasure to speak of him after he is gone. Dr. Adams was one of the best known practitioners in this part of the State. He had a large practice. He was a hard worker; even up to the very last day he was busy. It was a great pleasure to be with him in consultation. He was always anxious that nothing be left undone that would aid his patients.

As physician to the Presbyterian Orphanage at Barium Springs for the past twenty-six years he was at his best. He often told me that he enjoyed this part of his practice best of all, for he felt that he was helping those who could not help themselves. The health record of the children there has been remarkably good, and the mortality almost nil—a circumstance for which all others gave him a far larger measure of credit than he would accept.

As Councillor he has done much to advance the cause of medicine in his district and the entire State. In the affairs of the Ninth District Society, he always took a great interest and spent himself freely. He

always attended the meetings, and the increasing attendance and interest in the meetings each year gave him a great deal of pleasure. If such were possible, his interest in the meetings increased each year, and his efforts to make the society a success were a powerful encouragement to those who followed his lead.

He was a man of even temper. He was quiet and courteous and always in a good humor. The uniform courtesy which he showed to every patient, no matter of how humble circumstances, was an example to every medical man. He held that duty to himself requires that one always be a gentleman.

Illness in his family, which grieved him deeply, and financial losses, which seem to be the lot of every doctor, did not affect him as it has some. He continued the same pleasant and agreeable gentlemen that he always was. He was a good citizen. He always met his obligations promptly; he was conservative; he was liberal to all good causes and always willing to extend a helping hand to those in need. On more than one occasion I have seen him when efforts were being made to get him to favor moves of which he did not approve, and he always stood firm.

In the affairs of the State Medical Society, he was loyal to the organization. To those to whom he had pledged his support he gave his support freely and without any reservation or hesitation. He was loyal to his friends, but above all he was loyal to the great principles which make this the greatest profession in the world.

Just a few hours before his death I saw him at a distance. He was crossing the street with the active stride of a more youthful man. In his buttonhole was a poppy. He waved and gave me a cheerful smile.

Quoting directly from an article written by Dr. Adams for the Ninth Dstrict Bulletin (not yet published), the following remarks illustrate the trend of his thought:

"Disease and ignorance are hard foes to conquer, and experience tells us we have to be well organized to win our way to influence and power in law and with the people. To have our profession organized and loyal to the fundamental principles is perhaps a dream that will never come to pass, but those who are discouraged with the progress we are making I refer to the wonderful advances in medical science in the last fifty years and to the wonderful good which organized medicine has accomplished.

"Organized medicine has raised the standard of our profession to a high degree. It has kept out cults and quacks and irregular practitioners and has thrown the mantle of its protection over the millions of patients who are not always able to tell the good from the bad, the regular from the irregular, and the quack from the legitimate.

"Without organized medicine which is represented by the County, District, and State societies and the American Medical Association, the plight of the doctor would be pitiful indeed."

These words were written by Dr. Adams only a few days before his death. They show the kind of a man he was to the end, a man entitled to

a high place in the hall of fame of great medical men who have gone on to their reward.

The Medical Society of the State of North Carolina, the Ninth District Society, and the Iredell-Alexander County Medical Society have sustained a great loss.

The writer is deeply grieved in the loss of one very dear to him, one who has been a wise and kindly friend, counsellor, and guide since the first day of his arrival in this world.

DR. M. R. ADAMS, Statesville

By Thomas Lee Trott

Dr. M. R. Adams is gone! The thought makes me sad, but it is a sadness mingled with hope, and even joy, for a spirit like his cannot die.

For seven and one-half years he was my neighbor and intimate friend. His life was an open book and all were privileged to "read, mark, learn and inwardly digest it." In looks, he was distinguished and his face was wreathed in a perpetual smile that was an index to his inward heart and life. The daily walk and work of Dr. Adams, inspired and blessed his home, his neighbors and friends.

He was a model of etiquette, a gentleman first, last, and always. He knew all the little graces of life and practiced them. Wherever he went he carried sunshine, gladness, joy, and hope.

There must have been a cause, or as we sometimes say a little secret for this dear friend of ours, and I know what it was. He had a fine background, noble ancestors had a part in his making. A splendid, cultured christian wife aided him, good children blessed his home. He himself created an atmosphere which redounded to his good and his gradual growth and development.

But I am sure that the chief thing which contributed to his success in life, which really made him what he was, and is, was his strong, steadfast, undying faith in the old rugged Cross. It always made one stronger to come into his presence. When anyone thinks of Dr. M. R. Adams he instinctively remembers kindness, courtesy, faithfulness, devotion, worship and christian living. I admired him, respected him, and loved him; we all did.

"Now the labourer's task is o'er
Now the battle day is past;
Now upon the farther shore
Lands the voyager at last—
Father in thy gracious keeping
Leave we now thy servant sleeping."

DR. J. L. EGERTON, Hendersonville

Drs. Grantham and Lott
Asheville, N. C.

Dr. James Lafayette Egerton was born in Rutherford County, North Carolina, November 30, 1856, a son of Dr. Thomas R. and Sara Logan Egerton.

He had a worthy example before him to lead him into the choice of a profession, since his father practiced medicine from early days until the closing years of his life, and also served with the rank of surgeon, in the Confederate Army.

Dr. Egerton was liberally educated, having attended the public schools of the county, Yarborough Academy, and took his medical work in the University of Maryland, Medical Department, at Baltimore, where he graduated M.D. in 1877.

In July of the same year he located in Hendersonville, North Carolina, where for over half a century he was actively engaged in the practice of his profession. He handled a general practice, was for years an active member of the Board of Health, and a member in high standing of the Henderson County, North Carolina, Tri-State, and Southern Medical Society, and the American Medical Association. Dr. Egerton was also called and responded to various demands upon his time for public duty.

In September, 1879, Dr. Egerton married Martha Fletcher, daughter of Dr. George W. Fletcher, Fletcher, North Carolina. She died leaving three daughters, Mrs. W. R. Kirk, Mrs. Erskine Ehringhaus, and Mrs. Perry Quattlebaum.

In 1893, Dr. Egerton married Effie Burroughs of Conway, South Carolina.

In the practical work of his profession as a physician, and in his devotion to the interests of the medical fraternity and welfare of the community, Dr. Egerton was one of the conspicuous citizens of Hendersonville.

Not only had Dr. Egerton's remarkable career as a successful physician endeared him far and wide, but his human qualities as a man among men, his kindness, his conscientiousness, his sound common sense were outstanding characteristics. He was a splendid type of the family physician of the old school; gentleman, friend and counsellor—always more ready to serve than profit.

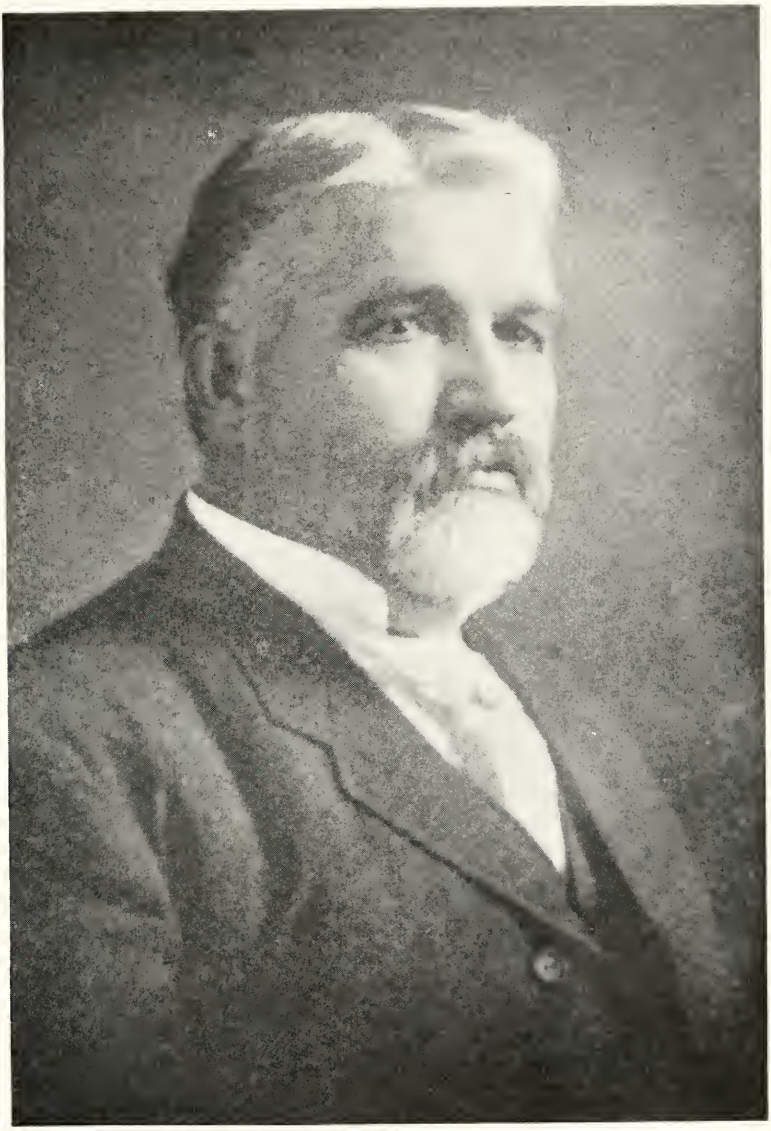
"He has achieved success who has lived well; laughed often, and loved much; who has gained the respect of intelligent men and the love of little children; who has filled his niche and accomplished his task; who has left the world better than he found it, whether by an improved poppy, a perfect poem, or a rescued soul; who has never lacked appreciation of earth's beauty, or failed to express it; who has always looked for the best in others and given the best he had; whose life was an inspiration; whose memory a benediction."—*Van Dyke.*

DR. HENRY AUSTIN

May 9.—Dr. Henry E. Austin, 46, a member of the staff of the United States Veterans' Hospital, died suddenly today from a heart attack.

A native of Garner, N. C., Dr. Austin served with the American forces in Siberia in 1918 and was connected with hospitals in Washington and Philadelphia before coming to Coatesville. He will be buried with military honors in the Arlington national cemetery, on Thursday.

His wife and two sons survive.



Dr. James L. Egerton

DR. JAMES F. BADGETT

Danville, Va., May 15.—Dr. James F. Badgett, 77, widely known in Caswell County, died at 1:30 o'clock Sunday morning at his home on the Park Springs road and was buried that evening, services being conducted by Rev. I. T. Poole.

He retired in 1916 but prior to that time enjoyed a wide practice. He was married in 1891 to Miss Nannie Cobb who died several years ago. He began practicing medicine in 1885. Two children survive him, Mrs. V. W. Daniel of Caswell County and H. A. Badgett, of Farmville, N. C.

DR. JOSIAH EVANS COWLES

Los Angeles, June 14.—Dr. Josiah Evans Cowles, 78, outstanding figure in medical work and in the civic and religious life of Los Angeles, died of heart disease today. Dr. Cowles was born in Hamptonville, N. C., received his early education at Lenoir, N. C., and was graduated from the University of Maryland at Baltimore. His wife survives.

THOMAS MURPHY JORDAN, M.D.

By George M. Cooper

In the passing of Dr. Thomas Murphy Jordan, which occurred at the home of his son, Dr. William S. Jordan, at Fayetteville on June 29, 1933, I can truthfully say that I lost one of the most congenial friends I have ever had. I first met Doctor Jordan on a pullman train going from Raleigh to Hendersonville in 1912. I was county health officer of Sampson County and he was city health officer of Raleigh at the time. We were going to the meeting of the State Medical Society and the State Health Officers to be held at that place. Doctor Jordan was, as just mentioned, city physician of Raleigh at the time. He held that office from July 2, 1909, to May 1, 1913. This position was a part-time job at the time. He was also prison physician during the same period, or for the greater part of the Kitchin administration.

When I came to Raleigh in 1915, to join the executive staff of the State Board of Health, Doctor Jordan was doing private practice there. Therefore, having known and respected him for several years, it was natural for me to offer him one of the first places to become available in the field work of my department. In the fall and winter of 1915-16 we were experimenting with the possibilities of medical inspection of school children, and obtained appropriations from a number of counties, and employed Doctor Jordan, along with Dr. A. C. Bulla, who was the first man to come with my department after coming to Raleigh, to do this work. Doctor Jordan made an enviable record in the school work and made an impression that lasted to his death in such counties as Iredell, where he worked.

In the summer of 1916 Judge Lyon and other influential people in Bladen County had become alarmed at the large number of pellagra

patients in that county, and they made up a purse of eight hundred dollars in cash and requested the State Board of Health to expend the funds in an effort to eradicate pellagra. I was designated to take charge of the work. At that time there was bitter controversy among the profession concerning the Goldberger theories about the dietary deficiency cause of pellagra. The controversy worried me not a bit because I had practiced medicine long enough to know that dietary deficiencies were causing a lot of conditions that could have been prevented.

I accepted the responsibility with the understanding that the Bladen people would allow us to put on a campaign against typhoid fever at the same time, as they were having, not only in Bladen but in other counties of the state, a great deal of typhoid fever then. We immediately selected Doctor Jordan and commissioned him for three months work in Bladen County. We rigged up an illustrated lecture, arranged for a meeting place in every community of Bladen County at which people could come out in the day time and receive the immunization against typhoid fever and at night hear Doctor Jordan's lectures and see his illustrations. Doctor Jordan was a natural born orator; he was a fine mixer; he was friendly, and, above all, he was sincere.

In all of my experience there has never been a more successful enterprise in this state in the field of public health than the one Doctor Jordan put on in Bladen County in the summer of 1916. A large percentage of the population were immunized against typhoid. We wrote a pamphlet and adopted the slogan which became famous through the state immediately. The slogan was: "A Cow and a Garden and Poultry for Every Family in Bladen County." Doctor Jordan placed one of these pamphlets in the hands of every family in the county, white and colored, and told them the story first-hand. It is sufficient to note here that the deaths from pellagra and typhoid fever took a perpendicular drop in that county and have remained consistently low ever since. Congressman Clark, who was a resident of Bladen at the time, is authority for the statement that "Doctor Jordan could have been elected to any office within the gift of Bladen County at any time after that campaign." I mention this to illustrate his ability and his forceful personality.

Doctor Jordan was born in Orange County, near Cedar Grove, August 9, 1856. He was the son of Colonel William Harvey Jordan and Mary Frances Faucette. He was educated at Hughes Academy, Cedar Grove; and right here let me say that I believe Doctor Jordan was one of the most accomplished English scholars anywhere in my acquaintance. In February, 1878, he went to Wayne County to teach school at Pine Forest, where he taught for two years, during which time he began his study of medicine under the tutelage of Dr. George L. Kirby, of Goldsboro, who later became superintendent of the State Hospital at Raleigh. He was graduated from the College of Physicians and Surgeons in Baltimore in 1881, receiving his license to practice medicine in North Carolina the same year.

For two years Doctor Jordan practiced medicine at his old home in Orange County. In 1883 he located at Hookerton in Greene County. Having purchased the good will and real estate of the late Dr. Frank M. Rountree, who removed to Kinston, Doctor Jordan practiced in Greene County until the latter part of 1899, when he removed to Raleigh. During the sixteen years of his work at Hookerton, he kept abreast of the progress of medical practice by postgraduate work in Baltimore and New York. In the language of Dr. James M. Parrott, "Doctor Jordan was 'cock of the walk' at Hookerton and throughout that entire section as a practicing physician." He was able and successful in his practice.

During the administration of Governor Aycock he was a member of the board of directors for the insane hospital at Goldsboro. After the expiration of his term as prison physician and city physician at Raleigh, he was engaged in private practice until he came with the State Board of Health for two or three years special work, which was most successfully done and which carried him to many sections of North Carolina, as just described in his Bladen County work. This was one of the happiest periods of his life, as the work was congenial and the associations pleasant in every respect.

He was for a short time health officer of Nash County. In 1918 he became a member of the staff of the State Hospital for the Insane at Raleigh, under the superintendence of Dr. Albert Anderson. He was first placed in charge of the Women's Ward but soon after took over the work of the Epileptic Colony, where he served until the time of his retirement through resignation, October 1929. While he was in charge of the Epileptic Colony, he was president of the North Carolina Hospital Association for one year. At a meeting of the Tri-State Medical Society of the Carolinas and Virginia, held in Norfolk, he read a paper on the care of the epileptic, which was received with an unusual amount of favorable acclaim and was widely commented upon. After his retirement in 1929, he, with his wife, spent his winters in Gainesville, Florida, and his summers in North Carolina.

In February, 1884, he married Miss Ida Mae Sasser, the daughter of Captain and Mrs. Asa LaFayette Sasser of Wayne County. To this union were born nine children, of whom eight survive, three sons and five daughters. One of the daughters is the wife of a professor in the University of Florida at Gainesville. One of the sons is Dr. William S. Jordan, of Fayetteville. The other sons graduated from the United States Naval Academy at Annapolis and are officers in the United States Navy.

It may be said in all sincerity that Doctor Jordan was "a doctor of the Old School" but a man who kept himself fully up to date in his profession and a man who, throughout his long life, was an honored and respected citizen as well as an able physician.

DOCTOR JOHN M. MANNING, Honorary Fellow

By Hunter Sweaney, M.D.

Dr. John M. Manning was born in Pittsboro, Chatham County, North Carolina, April 8, 1857. He died of chronic nephritis at the home of his brother, Dr. I. H. Manning, of Chapel Hill, North Carolina, on August 30, 1933.

Dr. Manning's father, John Manning, came originally from Edenton, North Carolina, and was indeed a prominent and influential citizen both in his county and throughout the state. John Manning established the Law School of the University of North Carolina and headed this department from its formation in 1881 until 1899. In that section it is doubtful if any other lawyer of his day had a wider acquaintance or a greater influence.

His mother was Louisa Jones Hall of Jackson, North Carolina, daughter of Dr. Isaac Hall. She was a woman of unusually fine character and gave herself wholly to the interests of her husband and her children. Her unselfishness and devotion was rewarded in rearing four daughters—Miss Mary Manning and Mrs. Frank Venable of Chapel Hill; Mrs. Weldon Huske of Fayetteville; Mrs. W. R. Webb, Jr., of Bell Buckle, Tennessee; and three sons who have distinguished themselves in their respective fields: Dr. John M. Manning, the subject of this paper; Judge James Manning of the Supreme Court of North Carolina; and Dr. I. H. Manning, head of the Department of Physiology and formerly Dean of the Medical Department of the University of North Carolina.

On the twentieth day of November, 1889, in Newbern, N. C., Dr. Manning married Mary S. Amyette, who possessed both beauty and sound common sense. Mrs. Manning was a devoted and conscientious wife. I knew of Dr. Manning's devotion to her and that she contributed much to his success by her coöperation. He survived her six years. There is one daughter, Mary Louise, now Mrs. Don Sasser of Norfolk, Virginia.

For the period of his time, Dr. Manning made good use of the educational opportunities offered. Only private schools existed in his locality and these he attended regularly until his admission to the State University in 1875. He was a member of the class of 1879, which was the first one graduated after the Civil War. During his college career in this institution he applied himself well to study and also to the finer things of intercollegiate affairs. He joined the Phi Kappa Sigma fraternity, and late in life had much to do with the reorganization of the local chapter.

Prompted as he was by the influences of both heredity and environment, it was inevitable that Dr. Manning should fulfill the wish of his youth to study medicine. To gain this end he accepted his first position in the State Treasurer's office from 1879 to 1880. During his spare time he read medicine under Dr. Peter Hines of Raleigh. Dr. Hines had a thorough, unwavering way about him and was a source of much inspiration. This association was a privilege and, no doubt, made its lasting impression upon his pupil.

In 1880, Dr. Manning registered in the School of Medicine at the University of Virginia. At that time, a full course in medicine consisted of one year and this he finished in 1881. In 1882 he graduated from the Bellevue Hospital Medical College in New York City.

He first began the general practice of medicine in Pittsboro. Well do I remember his telling me of his sense of loss in caring for patients in the beginning without having had any clinical experience. It was as novel to his patients as it was to him.

Thinking that the opportunities would be better, Dr. Manning moved to Durham in 1887 and continued practice until his state of health became such as to necessitate his retirement. He was soon well established and enjoyed an active practice. His always congenial personality and unquestioned sincerity in the sick room won for him friends in all walks of life. He never hurried and was always painstaking and sympathetic with those in distress. His name became symbolic of honesty and integrity of character.

The condition of Durham during his early days from the standpoint of sanitation was deplorable. In 1880, typhoid fever made its appearance and was described then as the malignant type. At this time the city water was unfiltered and the sewage disposal was indifferent. Open wells were used for drinking purposes, and it was no wonder that both typhoid fever and diarrhea became widespread.

The Health Department of Durham was a natural outgrowth of this situation, which made a profound impression upon Dr. Manning. He was Superintendent of Health from 1892 to 1895 and Health Officer from 1895 to 1899. Later, he was a member and one time President of the Durham Board of Health. The following quotation from a letter to me from the present Superintendent of Health, J. H. Epperson, gives a clear idea of Dr. Manning's connection with the Health Department and his influence in making this department one that has, not only state recognition, but also nation-wide prominence:

"The Durham County and City Board of Health was chartered by the N. C. General Assembly in the year 1913, the charter having been designed and fostered in a large measure by Dr. Manning. Following the issuance of the charter, the Durham City and County Board of Health came into being as a result of a provision in the charter which required the City Council and the Board of County Commissioners to meet in the County Court House on the first Monday in April and elect a Board of Health consisting of seven members, two of whom were physicians. Dr. Manning was one of the physicians elected and at the first meeting of the Board held following the election, Dr. Manning was elected chairman, which position he held until the first Monday in April, 1918. The record does not show that Dr. Manning's name was proposed to the two Boards the following year for re-election; however, my recollection of the facts

in the case is that he refused to have his name considered because of the desire to enter his name in the election for the Durham City Council during the year 1919."

"Dr. Manning was very loyal to the Public Health Program in every particular. I knew him personally from June 1st, 1915, and I gave it as my honest opinion that no man ever served the Board more conscientiously and faithfully than did Dr. Manning. He was always ready when needed to advocate and try out new ideas in preventive medicine and had it not been for his stubborn determination in the early days of the Health Department, there is little doubt in my mind but that the City and County Board of Health would have ceased to exist, because of the lack of interest on the part of politicians and the governing bodies of the City and County."

During these busy years, in addition to his interest in his many duties to his patients and in the health of the town, Dr. Manning became interested in local government. From 1919 to 1921 he was a member of the City Council. Here he was fearless and he spoke his feelings about the various issues regardless of who might be affected. He was a Democrat and democratic in every sense. What he considered best for the people of Durham at large was the cause he always represented.

Thinking again of increasing his usefulness, he ran for mayor of the City of Durham; and after his first election in 1921, the politically minded saw the futility of giving opposition. He remained in this position until 1931, when ill health made him unable to carry on further. The outstanding things done during his term of office were the institution of the managerial form of government and the paving of many miles of streets. His continued interest in the Health Department and his advocacy of adequate appropriations for it contributed to its phenomenal growth.

Along with his many other interests, he was a regular attendant at the meetings of the Durham Academy of Medicine. Later he became a member of the Durham-Orange County Medical Society and entered into its deliberations and many of its discussions. To me, he was one of the fathers, who acting as a pilot in its course, steered the Society through difficult waters. He was interested also in the State Society and belonged as well to the American Medical Association.

The Watts Hospital, founded through the generosity of Mr. George W. Watts, came into existence in 1895. Dr. Manning represented the Durham Academy of Medicine on the Board of Watts Hospital in its beginning and in 1899 was elected the Trustee from the Durham Academy of Medicine. In 1903 he represented the Episcopal Church on the same Board, serving at various times on the auditing, executive and financial committees. In addition, he served on its staff in different capacities but largely on the medical side.

During Dr. Manning's life in Durham, for ten years beginning in 1896 he was associated in the practice of medicine with Dr. A. G. Carr. Later

he was associated with Dr. Cook and Dr. Cain. From 1917, Dr. Manning and my father, Dr. John Sweaney, were together until the time of my father's retirement ten years later.

For many years he was local surgeon to the Norfolk and Western and the Southern Railroads.

Dr. Manning was profoundly religious. To him, immortality was real and in his daily life he lived by the teachings of the Bible. His pastor, the Rev. S. S. Bost, has this to say about him:

"Dr. Manning associated himself with St. Philip's Episcopal Church, Durham, in 1889. He was highly esteemed by his associates in religious work. At different times he held the highest elective offices in his Parish and was always faithful in whatever he undertook. He was reverent and devout by nature and was as faithful to his church duties and church attendance as the life of a busy doctor will permit. Sincere, frank, fearless in all other matters, he was equally so in his moral and spiritual life. It may be doubted if anyone ever said aught against his moral character. His life was an open book and few men have so enjoyed the great respect and confidence of a wide circle of friends."

Dr. Manning's life was full, profound, and inspirational. He was a great physician with an open mind and a generous heart. He had no thought for selfish motives. The consuming theme of his career was the advancement of the community as a whole.

DR. B. D. MARSHBURN

Selma, April 3.—Funeral services for Dr. B. D. Marshburn, who died at the home of his daughter, Mrs. W. A. Watkins, near Angier, Friday afternoon at 12:15, were held from the home of Mrs. Watkins Saturday afternoon at 1:30, conducted by Rev. D. F. Waddell, pastor of the Selma Presbyterian Church. The interment took place in the Selma cemetery.

Dr. Marshburn, who was in his eightieth year, was married at the age of 25 to Miss Susan Alice Parker, of Harnett County. Of this union four daughters were born, Mrs. W. Tom Royall, of Dunn, who died two years ago; Mrs. E. G. Richardson, Sr., of Selma; Mrs. C. F. Earp, of Wilmington, and Mrs. W. A. Watkins, of near Angier. His wife preceded him to the grave a year ago last January.

The deceased began the practice of medicine at the age of 23 and practiced until a few years ago. He received his medical training in the College of Physicians and Surgeons, Baltimore, Md.

DR. L. E. McDANIEL, Jackson

By P. P. McCain, M.D.

In the death of Dr. L. E. McDaniel of Jackson, N. C., on May 2, 1933, the medical fraternity lost one of its prominent and best loved members and the State a most useful citizen. He was born on July 29, 1880, at Chester, S. C., and was a member of one of the most prominent families

in that section of the State. He received an A.B. degree from Erskine College, Due West, S. C., and a few years later matriculated in the Medical Department of the University of Maryland, from which he was graduated in 1911. After having spent four years as interne and resident physician at the University of Maryland and at the Atlantic Coast Line hospitals, he moved to Northampton County to engage in private practice. His splendid ability and his remarkable friendliness assured his success from the beginning. He took quite an active interest in organized medicine. He was a member not only of his county and state medical societies, but also of the Seaboard and the Tri-State medical societies. On account of his outstanding qualities he was chosen as a member of the State Board of Health and he served in this capacity for four years.

He also took an active interest in civic affairs. He was a member of the Methodist Episcopal Church and was quite prominent in fraternal organizations. He was a thirty-second degree Mason and also a member of a number of other fraternal organizations.

It was my privilege to be closely associated with him, both in literary and medical schools. His cheery disposition and his contagious friendliness made him everywhere a favorite.

For many years he was a sufferer himself from bronchial asthma and for some years before his death from cardio-renal disease. Regardless of his own feelings, however, he was always ready to answer the call of the sick, whether rich or poor, and whether during the day or during the night. It is not surprising that he should have a host of friends.

To his devoted wife, Mrs. Retha Banks McDaniel, and to his four promising children, we wish to express our deepest sympathy in the great loss which both they and we have sustained.

DR. JAMES D. NISBET

Charlotte, July 27.—Dr. James D. Nisbet, digestive tract disease specialist and internationally known physician, died in a hospital here today after a brief illness. He was 71 years old.

Dr. Nisbet, a native of Waxhaw, S. C., retired from active practice in 1923 and had made his home at Van Wyck, S. C., since that time. He was brought here yesterday.

He had studied here and abroad, was the author of a text, "Diseases of the Stomach" and held the title of professor of diseases of the digestive system at the New York Polyclinic Hospital until his retirement.

He is survived by his wife who was Miss Emma Beula Hayes, of Lewisburg, Pa.

The Nisbet family was steeped in the medical profession. Dr. Nisbet's father was a physician and each of his sons were physicians, as is one nephew. Another nephew is a dentist.

Dr. Nisbet received his A.B. at Davidson College in 1881, studied at the Charleston Medical College in 1882 and obtained his M.D. at Louisville Medical College in 1886. From that time until 1889 he practiced in

Lancaster County, South Carolina, and then went to New York Polyclinic for post-graduate work until 1890. From that time until 1902 he practiced as a specialist in diseases of the digestive system in New York.

He continued his post-graduate studies at the University of Paris, Tubingen and Berlin, each time coming back to New York City to resume practice.

He gained a fellowship in the New York Academy of Medicine, was a member of the Society of Medical-Jurisprudence of the A. A. A. S., a member of the New York Zoological Society and others.

IN MEMORIAM—DR. HANSON S. OGILVIE

Buncombe County Medical Society, Asheville, N. C.

The Buncombe County Medical Society and the profession of Asheville have suffered irreparable loss in the passing of our beloved member, Dr. Hanson Slaven Ogilvie.

Dr. Ogilvie was born in Coshocton, Ohio, July 12, 1885. At the age of two years he moved with his parents to Montrey, Va., near Staunton, where he lived and obtained his early education. His pre-medical education was completed in Norfolk, Va. His medical degree was earned at the Medical College of Virginia at Richmond, where he graduated May 19, 1909.

Further educational work was done in the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, as assistant to Dr. Weir Mitchell. He served as Chief of Clinic at the New York Neurological Institute. Another service was enjoyed at Rockefeller Institute. He was also attending neurologist to the Vanderbilt Clinic (P & S) as well as consulting neurologist to St. Bartholomew's Hospital in New York City. Dr. Ogilvie had his own hospital in New York City for many years where he was able to advance the medical knowledge on the treatment of cerebro-spinal lues. His method became known throughout the world as the Ogilvie Technique.

After leaving New York City he went to Charleston, W. Va., where he was employed in the Veterans' Hospital of the U. S. Government. Eight years ago he came to Asheville to practice neuro-psychiatry.

Dr. Ogilvie was a great lover of the out-of-doors and knew every mountain and cove in the vicinity of Asheville from having explored them on his many walks.

Dr. Ogilvie seemed never to think of himself, but did think constantly of others. He treated most of his patients without remuneration, often paying for the medicine which he prescribed. He asked little of others and was happiest when he was doing something for someone else. A more thoughtful man, a more highly cultured and courteous gentleman has seldom entered the ranks of the medical circles of this city.

As a physician of conspicuous attainments, as a true and loyal friend, as a valuable and esteemed member of the community, Dr. Ogilvie will be greatly mourned by his professional brothers throughout the country as well as by his many devoted friends and grateful patients.

Dr. Joseph Greene,
Dr. Martin L. Stevens,
Dr. George W. Kutscher, Jr., *Chairman,*
Committee, Buncombe County Medical Society.

DR. CHARLES R. REAVES, Greensboro

Dr. Charles Richard Reaves, widely known physician and surgeon, died at 11 o'clock Tuesday night at his home, 113 Hendrix street, following illness of one week. Death was caused by pneumonia.

Dr. Reaves was born in Greene County, Tennessee, March 11, 1884, son of the late Mr. and Mrs. E. F. Reaves, of Greenville, Tenn. He received his preparatory education at the Greenville high school and then studied medicine at the University of the South, Sewanee, Tenn., from which he was graduated in 1907.

Following his graduation, he practiced medicine for some time in the mines at Egan, Tenn., after which he did post-graduate work in Chicago and New York.

He came to Greensboro in 1913 and, with his brother, Dr. W. P. Reaves, established Reaves infirmary, an eye, ear, nose and throat hospital. At the time of his death he was president of the medical staff of St. Leo's Hospital, chairman of the membership committee of the Guilford County Medical Society and a delegate from that organization to the North Carolina Medical Society, having been elected in October, 1932, for a two-year term. He had been president of the Medical Arts Club and vice-president of the Guilford County Medical Society. Dr. Reaves was a member of West Market Street Methodist Church. He was a member of the Rotary Club.

October 20, 1915, he married Miss Virginia Dare Seay, daughter of Mrs. A. L. Seay and the late Mr. Seay, of Shores, Va., who survives, together with two daughters, Beverly, 17, and Marilyn, 12.

Surviving, in addition, are four sisters, Mrs. George Lamons, Mrs. J. R. Sentell, Mrs. J. K. Davis and Miss Flossie Reaves, all of Greenville, Tenn., and four brothers, J. M. Reaves and H. C. Reaves, of Greenville, Tenn.; Dr. R. G. Reaves, of Knoxville, Tenn., and Dr. W. P. Reaves, of Greensboro.

Dr. Reaves was recognized as one of the leading physicians in this section. He was a man of very attractive personality and was quite popular.

Funeral service will be held at West Market Street Methodist Church at 10:30 o'clock Thursday morning with the pastor, Rev. W. A. Stanbury, D.D., and Rev. Charles F. Myers, D.D., pastor of the First Presbyterian Church, in charge.

DR. CHARLES REAVES

In the lament of the city at the passing of Dr. Charles R. Reaves there are reflected the circumstances that he was a distinguished specialist, that he had been long established in the community in the practice of the healing art, that he is cut down untimely, in his full strength, and that he was a man having the qualities of friendliness.

There is always a peculiar sense of loss when a physician yields to the enemy against which his powers have been employed, if he has been long in practice, for so many have been bound to him by the ties of dependence, for personal ministration or ministration for some near relative or close friend. Such a man seldom comes to realize in how much regard he is held; for there is a richness in the expression of it which will hardly be evoked by anything less than a final tragic severance. Everywhere yesterday one heard voiced the tribute of regret. Men and women are not wont, in such circumstances, to be very definite. They express themselves rather in trite and homely phrases. Yet the trite and homely phrase may have its own eloquence.

He was held in a respectful regard by his own profession, who knew him best for a hard and earnest worker, well endowed with special aptitudes in medicine and surgery. The multitude, with its instincts unaided by special knowledge, rated him a good man, sterling in the quality of citizenship.—Editorial, *Greensboro News.*

DR. HENRY D. STEWART

Monroe, March 20.—Funeral for Dr. Henry D. Stewart, 63, who died in Albemarle early this morning will be held at his home on Lancaster avenue at 11 o'clock Thursday morning. Dr. Stewart had gone to Albemarle the night before to attend a dance and early in the morning had gone to the home of Mr. and Mrs. Walter Milton, Mrs. Milton being a sister of Mrs. Stewart, and went to bed. The Miltons on returning from up town at 12 o'clock found the doctor had not arisen and became alarmed. Upon going to his room they found him dead. Physicians ascertained death had occurred several hours before.

It was Doctor Stewart's intention to make the race as candidate for the 1935 session of the State Legislature.

Dr. Stewart graduated at old Trinity College, taught and then took his medical course at Johns Hopkins and the University of Maryland. He first began to practice at Wesley Chapel and moved to Monroe about 1900, continuing here without interruption except for the time he was in service in the World War. He volunteered and was attached to the medical corps with the title of Captain. He had charge of a base hospital in France during the war.

Dr. Stewart is survived by his wife who was Miss Ione Wolfe, and by three sons and two daughters, Dr. John D. Stewart, chemist for the DuPont Company, in New York, Dr. John D. Stewart and Dr. William Crawford Stewart, both practicing physicians in Boston, and Misses

Laura and Lydia Stewart. He was a son of John D. Stewart, one of the early builders of Monroe, and his surviving brothers and sisters are Mrs. S. B. Bundy, Mrs. Alice Nelson, Mrs. Laura Stewart, all of Monroe, and Capt. W. C. Stewart, of McBee, S. C.

DR. E. M. SUMMERELL

Dr. Elisha Mitchell Summerell was born in Salisbury, N. C., January 24, 1858, and died January 28, 1934. He was the son of the late Dr. J. J. and Ellen Mitchell Summerell of Salisbury, N. C., and a grandson of Dr. Elisha Mitchell of Mt. Mitchell fame. He graduate with A.B. degree from Davidson College in 1876 and won his M.D. degree from the University of Pennsylvania in 1883. In both classes he was an honor man. After practicing two years in Salisbury with his distinguished father he became the first assistant physician at the State Hospital at Morganton, N. C., and served with distinction for three years. In 1888 he located at Mill Bridge, Rowan County, N. C., and made this his permanent home. In 1890 he was happily married to Lillie Barber of Cleveland, N. C., a member of the illustrious Barber family of Colonial days. To this union was born three sons and three daughters, all now occupying positions of responsibility with honor. He was a faithful member of the Rowan County Medical Society, an Honorary member of the North Carolina State Society, and a member of the American Medical Association. He was a man of culture, keen intellect and strong personality. He was always liberal in his views and kept abreast with medical science and the secular world. He was a brilliant conversationalist and delighted in his associations with his professional brethren. His repartee was spontaneous and brilliant. He was an able physician and always discharged the arduous duties of a "country doctor" with fortitude and a sympathetic realization of his great responsibility. His most intimate confrere has aptly described him as a man with a colossal brain, a golden heart and a magnetic personality who rendered distinguished service throughout his life. Truly he was an honor to that exalted class of our professional brethren who have rendered such valiant and heroic and often brilliant service to our ancestors,—"The Country Doctor." No more fitting tribute could we pay to our departed brother than the text quoted by Dr. Walter Lingle at his funeral,—"He loved little children and they loved him."

April 5, 1934.

H. L. Monk,
C. W. Woodson,
F. B. Spencer,
Committee, Rowan County Medical Society.

DR. CHALMERS M. VAN POOLE

A mighty oak has fallen and the trees of the forest stand in reverence for one they honor and love.

Dr. C. M. Van Poole

Dr. Chalmers M. Van Poole was born September 2nd, 1854. A sturdy, unscarred ship, from the voyage of life, quietly entered the harbor, July 28th, 1933. The structure reveals a character such, that it serenely weathered the tempests and calmly rode the waves; of such power that it daily stood by and gave aid to those in distress; and one that never deviated from its charted course.

Dr. Van Poole's life was ever an open book. His ideals, activities, and customs were known to all. If he failed, it was not of purpose, but of execution. If he erred, it was not of the heart. He was kindly, considerate, sympathetic, ambitious, energetic, zealous, tireless, faithful, loyal, consecrated and devoted to his Creator and his fellowmen. He ministered unto the body, but realized a sound frame was not sufficient, without a healthy soul, devoted much time to the perfection of man, . . . as a soul doctor, a Churchman and a Sunday School worker. He was trusted by his fellowmen and they looked to him for leadership. He was accorded the highest honors of his chosen profession and was one of its grandest and noblest sons. He was a loving husband and a devoted father. His was a glorious life of service for the Great Physician, his Master. He touched the lives of legion.

'Tis the human touch in this world that counts,
The touch of your hand and mine,
That means far more to the fainting heart,
Than shelter, bread and wine.
For shelter is o'er when the night is passed.
Bread lasts but a day.
But the touch of a soul and the sound of a voice
Linger on in the mind always.

Day by day the number lessens,
  Year by year they slip away.
To the unknown land—far distant
  In the realms of endless day.

Some have left us in the morning,
  Some at noon-time took their flight.
Some in evening's twilight shadows,
  Some in darkness of the night.

We shall miss them—ever miss them;
  Miss their hand clasps, words of cheer;
Miss their happy smiles of welcome
  That we knew when they were here.

But we hold them in sweet memory,
  And we know they are not dead,
To the heavenly land eternal,
  They've departed just ahead.

And ere long we know we'll meet them,
  In the realms of endless day,
When our tasks on earth are finished,
  And like them we've gone our way.

We close a wonderful book, but his memory, inspiration and influence shall ever carry on. —HAROLD H. NEWMAN.

DR. C. M. VAN POOLE

A Physician and Citizen

The county lost a good, a loyal and a most useful citizen in the passing of Dr. Chalmers M. Van Poole, of this city, Friday morning. He was in his eightieth year, and died after a short illness that ended a life of intense activity as physician and all around good citizen and churchman.

The life of Dr. Van Poole reminds us that a man may crowd a great deal into the short span alloted to him; that he may pile good deed upon good deed until he has accumulated a great storehouse of things that are truly worth while and most creditable to one life. He was not only a faithful practitioner of an honored profession, and made that profession a great platform for useful living, but he entered into many other activities and gave tone and character to these and left the record of a most helpful service everywhere.

Dr. Van Poole was a very active churchman, he was more than that, a Christian who sought to follow and to serve his Master humbly and helpfully. He was active in organizations that gave constructive progress to worth-while things. He was a leader in benevolences, and all community activities that went to the betterment of his associates, the county and state.

A man who practiced medicine for so many years met many opportunities for good deeds, far more than will ever be known of, and we believe that Dr. Van Poole took advantage of these many opportunities that came his way over the years of an active life.—*Editorial in Salisbury paper.*

DR. CHALMERS M. VAN POOLE, M.A.

Honorary Fellow and Past President

Dr. Chalmers Melanchthon Van Poole, 79, dean of the medical profession in Salisbury and this vicinity, died at his home at 428 South Ellis street at 8:30 o'clock this morning after an illness of ten weeks. Some time ago he became ill and being unsatisfied with his ailment, went to the University of Maryland hospital at Baltimore, where his sickness was diagnosed as undulant fever, a rare disease and one which was stated to affect very few people of his age and rarely fatal.

Upon returning home his condition gradually became worse and during the past several days his death had not been unexpected.

The funeral will be held Sunday afternoon at 3 o'clock at St. John's Lutheran church, conducted by Dr. M. L. Stirewalt and assisted by Dr. J. L. Morgan. Interment will be in Chestnut Hill cemetery. The body will lie in state at the church from one to three o'clock to allow friends to view the body.

Dr. Van Poole was born in Salisbury on Sept. 2, 1854, the son of Otho and Lucretia Katherine (Lentz) Van Poole. He received his A.M. degree at the old North Carolina College in 1878 and his M.D. from the College

of Physicians and Surgeons in Baltimore in 1880. Last year he attended a reunion of his class, presiding at the meeting and being the only living member of the class from North Carolina.

He began his practice in the county in 1880, being located at Craven in Providence township, and in the summer of 1913 moved to Salisbury to practice here.

In 1885 he married Mary Eliza Linn, daughter of the late Robert J. Linn of the county, and his widow survives him.

Dr. Van Poole did graduate work in New York from 1909 until 1911.

During his life he was highly honored by the medical fraternity, being treasurer of the North Carolina Medical Society from 1888 to 1893 and serving as president during the 1910-11 year. He was also twice president of the Rowan County Medical Society.

Likewise Dr. Van Poole was interested in business. He was president for a long period of the Rowan Mutual Fire Insurance Company and a director of the Vance Cotton Mills.

The deceased was an active member of the St. John's Lutheran Church for many years and in 1909-10 was president of the North Carolina Sunday School Association. At the time of his death he was an elder of St. John's Church.

During his lifetime he also found time to contribute articles of historical and biographical value, both locally and in the state. At the 1929 meeting of the North Carolina Medical Society, he having attended fifty annual meetings at that time without being absent, he presented a brief sketch of 57 doctors in North Carolina who had died. Just a few months ago he wrote an article for *The Post* which had to do with the Civil War and the march of Sherman.

He was a captain in the Medical reserve corps in 1917 and spent some time in Greenville, S. C., in preparation for the work which the local medical district performed.

In addition to his widow, nine children survive: Thomas B., Robert L., Otho, Ruth, and Rena Van Poole, all at home; Dr. Carl M. Van Poole, of Mt. Airy, Md.; Mrs. Oscar Phillips, of Albemarle; Mrs. W. E. Beaver, of Salisbury, and Glenn Van Poole, of Honolulu.

Two brothers, I. A. Van Poole of the county, and Dr. Gideon M. Van Poole of Honolulu, also survive.

Dr. Benj. J. Lawrence (Raleigh): Mr. President, before you introduce our distinguished guest I should like to make a statement to the Society.

Yesterday morning before I left Raleigh I received a telephone call to go to the hotel, and in my hurry I didn't respond immediately. Very shortly thereafter I received another call to come at once, that the gentleman wanted to see me immediately, that it was important.

When I reached the hotel I found that our beloved and distinguished friend, Dr. Jim Parrott, was not coming to this meeting. He is much improved, as his physician will tell you (I am not his physician; I am his friend), however, he is unable to be here. He asked me to bring you his love and affection and to say to you that he wept bitter tears of sorrow at not being able to be here; that it was his first time in thirty-seven years that he had missed a meeting.

I feel that he is held in such love and esteem and genuine affection by the members of this Society, sir, that at the proper time and at your convenience I want to make a motion that you appoint a committee of two or three, at your discretion, to carry our personal love and affection to this gentleman.

President Manning: Such a committee will be appointed.

I asked Dr. McBrayer some months ago when we were discussing the program if he wouldn't put on the cover, "Made in North Carolina."

Dr. Donnell B. Cobb, of Goldsboro, is to have the pleasure and privilege of introducing our guest speaker this morning. Dr. Cobb! (Applause)

Dr. Donnell B. Cobb (Goldsboro): Mr. President, this is a pleasure and I thank you for the privilege and honor.

Ladies and Gentlemen: Our guest speaker this morning is well known to many of you. He is a native North Carolinian and a graduate of Davidson College, receiving his Master of Arts from St. Johns College, graduating in medicine from the University of Maryland. He served during the World War and very quickly won success as Commanding Officer of Base Hospital 26, at the early age of 32. He was formerly professor of surgery of the University of Louisville and was also head of a section in the Division of Surgery of the Mayo Clinic.

His rapid progress and advancement have been truly remarkable. His voluminous and intelligent writings characterize him as a scholar and his comprehensive and delightfully informative book on "Diseases of the Large Bowel" distinguishes him as an authority. And I who have sat in his clinics and observed his diagnostic acumen and watched his almost uncanny and ambidextrous technical skill know him to be a master surgeon of first rank.

He is a member of the Western Surgical Association, of the Southern Surgical Association, of the American Surgical Association, and a Fellow of the American College of Surgeons.

His name is known throughout the world wherever good surgery is appreciated and practiced, and yet it is my distinct pleasure to introduce him to you this morning as a Tar Heel who through his own personal achievements sheds reflected glory upon the profession of our state. He is now on his way to address the Royal College of Surgeons in London, and we are very fortunate indeed in having him with us today.

He will talk to us on a subject he knows so well, "Carcinoma of the Rectum."

Dr. Fred W. Rankin. (The members arose and applauded)

Dr. Fred W. Rankin: Mr. President, Members of the Medical Society of the State of North Carolina, Ladies and Gentlemen: First, may I not thank you for the invitation to be your guest at your meeting and assure you that it is a privilege and a pleasure which I esteem more highly than I can tell you? I am very grateful to be invited to come back home, so to speak, and be present at your meeting today.

The Secretary allowed me a wide range of latitude in the selection of a subject and I hope that you will bear with me if I discuss one that I am more or less interested in, namely, the unpleasant subject of cancer of the rectum.

. . . Dr. Rankin then presented his prepared paper which he illustrated with slides. . .

SOME PROBLEMS IN THE DIAGNOSIS AND TREATMENT OF CANCER OF THE RECTUM

By Fred W. Rankin, M.D., of Lexington, Kentucky

With the increasing statistical data on cancer in general, it becomes evident that recognition of malignant diseases in general is more widespread than formerly. That cancer of the rectum is no exception to this general statement is obvious. When recognized early and extirpated before metastases have taken place, the very favorable prognosis of malignancy in this segment of the gastro-intestinal tract is becoming more generally recognized. Rectal cancer, two times out of three, is a recto-sigmoidal growth. This fact has been frequently demonstrated in a large series of cases by many observers, and an appreciation of the difficulty which this accounts for, not only from the standpoint of diagnosis, but from the standpoint of treatment, is essential. Cancers of the rectum occur, as I have said, at the recto-sigmoidal juncture, a fixed anatomical segment of the large bowel which extends both intra-peritoneally and extra-peritoneally in about 67 per cent of the cases. Of the remaining 33 per cent, two out of 100 will be in the anal canal and the rest in the ampullary portion of the rectum. This observation is practical because, first, obstruction usually is prominent in the syndrome of symptoms of recto-sigmoidal cancers and usually absent when they are located in the ampulla. Second, pathologically, in the three locations true cancers of the rectum are either adeno or papillary types, or ulcerating punched-out adeno-carcinomas whereas cancers occurring in the anal canal and around the anal margin are epitheliomas.

The symptomatology of cancers of the rectum proper and the recto-sigmoid differs considerably. The main symptom which induces people to seek advice is, in the vast majority of instances, bleeding. This is the most constant sign in rectal malignancies. In our experience the bleeding usually appears either in the stool or on the stool and while it is probably one of the earliest symptoms that the patient notices, it must be remembered that by the time the cancer produces bleeding, it has been present for a

considerable period or at least long enough to have invaded the mucous membrane. Frequently these growths attain a large size before they actually break through and produce any hemorrhage at all. Nine out of 10 cases will show this bleeding which is not as a rule, accompanied by any serious anemia except where the disease is far advanced and metastasis has taken place.

Another fairly constant symptom of carcinoma of the rectum and recto-sigmoid is irregularity of the bowel habit. This is in many instances difficult to elicit in taking the history for it is readily recognized that patients do not appreciate what a normal bowel habit is and frequently overlook the fact that the bowels either have or have not moved the same number of times each day over a given period. Attacks of diarrhea alternating with constipation, even though they are of short duration, are important as evidencing the probability of an organic lesion of the lower gastro-intestinal tract. Constipation alone was the predominating symptom in 55 per cent of a large group of cases which I once studied, and in 20 per cent diarrhea was the most common symptom.

I would emphasize the fact that deformed stools are of little or no significance and are found in cases of constipation more frequently than in cases suggestive of carcinoma of the rectum. The deformity of the stools is caused by stricture low down or by spasms of the anal sphincter, and if the growth be situated at the recto-sigmoid juncture or in the wide ampullary portion where no obstruction is present, it will not be noticed. Pain is an unreliable factor, present in some cases, absent in others, severe in some, and moderate in others. The rectum, as is well known, is not sensitive to pain and consequently in the early stages of cancer pain is not present.

Tenesmus and irritation of the bowel are in direct ratio to the proximity of the growth to the anal sphincter. Excessive loss of weight and strength are of no importance in making a diagnosis of a disease in this location and if they be the result of such a growth, they are much more likely to be an index to metastasis than otherwise.

The diagnosis of cancer of the rectum can be made accurately by proctoscopic examination. A digital examination of course, is of the utmost importance and will recognize the vast majority of lesions even though they be situated at the recto-sigmoidal juncture. The feel of a cancer to the examining finger is usually characteristic. It is either a single, punched-out, semi-fixed ulcer of the rectum or a localized papillary adenoma type of growth. With the patient in the knee-chest position, if he strains against the examining finger, a cancer as high in the bowel as the recto-sigmoid usually will be easily felt. Occasionally those situated at the recto-sigmoid juncture will be missed in this type of examination, but in a woman almost invariably a vaginal examination will demonstrate growths in this location. Proctoscopic examination should recognize a tumor as high up as the lower third of the sigmoid and the appearance under the eye is characteristic.

Proctoscopic examination allows the surgeon to estimate first, the site of the tumor; second, the size; third, fixation; and fourth, the degree of obstruction to the bowel. All of these factors are of importance because obstruction of the local growth, fixation, and extension are second only to hepatic metastases in estimating the applicability of an extirpative maneuver to an individual growth. The type of operation will be determined by the location of the growth in part, and in addition, fixation, distant metastases and the patient's ability to undergo a formidable operative procedure.

Biopsy is an important adjunct in the diagnosis for carcinoma of the rectum and it has been my practice over a period of years to use it routinely. While there is seldom doubt in a given case as to the pathological diagnosis, occasionally a rectum has been sacrificed as harboring a malignancy when the lesion was an inflammatory one. Biopsy avoids this and as far as I know, there are no scientific data available to demonstrate that a dissemination of cancer cells takes place after a biopsy of the edge of the growth followed by cauterization. Because of the necessity of grading a carcinoma to be able to determine in a measure its prognosis, the biopsy has become increasingly important. I believe that from the standpoint of prognosis the grading is of the utmost value and for this reason if for no other, I think it should be utilized freely.

RELATIONSHIP OF POLYPS TO CANCERS OF THE RECTUM

That there is a definite association between polyps and carcinomas of the rectum seems a fairly well established fact. That all cancers of the rectum develop on polyps is a hypothesis which I would not attempt to defend, but that polyps of the gastro-intestinal tract certainly undergo mutation from benignancy to malignancy is incontrovertibly true. Scattered throughout the gastro-intestinal tract in many individuals, one finds polyps ranging in size from 1 to 2 centimeters in diameter to tumors large enough to produce intussusception and obstruction. What percentage of the population they normally occur in, I do not know, but it is a relatively important percentage if one considers the statistics of routine autopsies.

There are 2 kinds of these polyps between which a distinction should be made—first, the adenomata which are true polyps and which in some instances, as is the case of so-called multiple polyps, are handed down from one generation as Mendelian dominants or recessives as some believers, notably Mummery and Duke, feel; second, the inflammatory tumors which are really pseudo-polyps and occur as secondary processes after prolonged and diffuse inflammatory changes such as ulcerative colitis and tuberculosis. The polyp-adenomas, however, are present in the rectum and in the colon in a large percentage of cases normally and their tendency in the "polypoidosis," "multiple adenoma," or "familial" type to undergo malignant degeneration in at least one-half of the cases is well established. That the isolated polyps like those diffusely distributed, undergo malignancy is, I feel, a proven fact. FitzGibbon and I reported 13 cases in the

June, 1931, issue of *Surgery, Gynecology, and Obstetrics* in which these changes were definitely demonstrated, and other observers among whom are Schmieden, Westhues, and Hauser have arrived at similar conclusions.

Whatever the initiating force that stimulates hyperplasia of certain elements of the bowel into activity by which it advances into malignancy, there is small doubt that a fertile soil for the development of a cancer is present under these circumstances. These polyps occur in a greater number in the lower rectum and sigmoid than in other parts of the gastro-intestinal tract and are discovered by proctoscopic examination and frequently removed by the same way.

In calculating others factors of etiology, one may eliminate such benign rectal lesions as fissures, ulcerative proctitis, hemorrhoids, and strictures as productive of any malignancy. Occasionally one finds a case where the co-existing conditions seem to warrant such consideration, but by and large there is scarcely sufficient evidence to substantiate the theory that carcinomas develop in tissue altered by these inflammatory processes.

Miles in discussing the pathology of rectal cancers divides them into 3 types: papillary, adenoid, and colloid. There are many other classifications based on clinical or histological grounds or a combination of both, but the significant fact is that cancers of the rectum develop from the crypts or glands of Leiberkuhn and are thus adeno-carcinomas, while those of the anal canal are true squamous cell cancers.

A word about mucoid cancers—I think that mucoid is a better word than colloid which has been widely used. The gelatinous material found in some of these tumors and from which they derive the name of mucoid or colloid carcinomas, has been described as a degenerative product and probably is derived from the epithelial cells of the tumor. Broders believes that such adeno-carcinomas differentiate to the extent that this mucous-like substance is produced. Boyd, Miles, and others believe that the mucoid material represents a degenerative stage. There are certain well known characteristics of this type of tumor, the most important of which is its bearing on prognosis. Mucoid cancers are slow of growth and late in metastasising to lymph nodes and other organs. They seldom recur but usually the recurrence is a local one rather than an hepatic. Parham, in a study of a long series of cases, found that about 5 per cent of all the carcinomas of the rectum and recto-sigmoid are of this variety.

That treatment of carcinoma of the rectum and recto-sigmoid is a surgical problem in the vast majority of instances today is, I believe, a truism. That some cases, particularly the anal canal group of cancers, are better treated by radium has been our experience and that a combination of radiotherapy and surgery is decidely advantageous in many instances seems reasonable. Here too, the treatment of cancers in this location by the use of radium or X-ray has been largely confined to the palliative group and even men of considerable experience in irridiation consider it as being in too experimental a stage to be applied routinely

to carcinomas of the rectum and recto-sigmoid in the place of surgery. It is not unreasonable, however, to believe that with increasing knowledge of the radio-sensitivity of cancer cells as judged by their microscopic grading, and with improved technique of application that marked advances in the use of this will follow in the next decade. Reports from experienced workers in this field on studying the end-results of a small group of cases, indicate that such an advance is likely. Shrinkage and inactivity of the local lesion emphasizes that there is a group of cases in which it might be employed advantageously as a preoperative measure, and perhaps postoperatively as well. The disadvantages in irradiation are attributable to the difficulty of approach to the lesion in many instances, and also the inability to influence regional lymphatics and distant metastasis. The combined method of radium and surgery is being investigated with increasing frequency in many clinics and without doubt gives hope of being a valuable maneuver in the future. Binkley, for instance, believes that external radiation constitutes the first step in the treatment of all carcinomas of the rectum and that in certain selected cases it may be the only form of treatment necessary, while in others surgery secondarily is demanded. The statement that external irradiation however, lessens the hemorrhage and diminishes the toxemia from absorption and consequently the infection around the carcinoma, has not been borne out in my own experience. Bowing and his colleagues are of the opinion that carcinoma of the rectum is still a surgical problem and that radium and rontgentherapy are valuable surgical adjuncts. "Radium is less satisfactory in the treatment of cancer of the rectum than in the treatment of adenocarcinoma of many other cavities of the body." "Few examples of undoubtable cure by radium alone have been reported in the literature, however, in most cases there has been improvement in the patient's condition and relief of symptoms."

"The problem of the inoperable group however, is different. Here irradiation does cut down the discharge and if it lessens the pain—which it frequently does not—and makes the individual more comfortable with or without a colostomy, it is worth while. Surgery alone or in combination with radium offers, I believe, the most satisfactory prognosis to the largest group of cases in the light of our present-day experience."

In selecting an operation for carcinoma of the rectum and recto-sigmoid, it is my feeling that one should attempt to do just as radical an extirpation of the local growth with a block dissection of the adjacent tissues as is compatible with a reasonable hospital mortality and an operability of not less than 50 per cent. In order to do this, one must perfect a technique which in the first place provides for an inguinal stoma and in the second place provides for the removal of a portion of the sigmoid mesentery into which the lumphatic drainage from the rectum flows. The first efforts must be directed toward the nullification of the so ever-present obstruction. In the left half of the colon in the recto-sigmoidal growths, obstruction is present in the vast majority of instances, varying in degree it is true,

but nevertheless sufficiently obvious to be recognized at laparotomy and consequently capable of producing intoxication, dehydration, and dessication. The principle of decompression of the colon as a preliminary to radical extirpation is an invaluable one and in combination with adequate measures for rehabilitation to as near the physiological equilibrium as is possible has, I think, been an enormous factor in not only the reduction of mortality but likewise the extension of the horizon of operability. This may be accomplished either by medical efforts or by surgical methods as the situation seems to indicate.

Carcinomas of the rectum or recto-sigmoid are never emergency operations save where the obstruction has become complete before the patient seeks the surgeon's advice. Consequently, decompression by medical measures consisting of supervised purgation and irrigation over a period of time up to a week will, in the majority of instances, result in finding at exploration a colon free from edema and consequently less liable to be host to invading organisms in the acutely obstructed.

Obviously, surgical decompression by means of a cecostomy is most urgently indicated. The rehabilitory measures which are carried on during the period of decompression, consist in a high caloric diet, the forcing of fluids, and routine blood transfusions. I have found the latter a most valuable adjunct in my service over a period of years and with increasing experience, find it being employed more and more satisfactorily.

The selection of operations emphasizes the necessity of individualization of cases. The principle underlying a graded procedure rather than attempting to complete the maneuver in one stage has, I think, been a most valuable advancement. The principles of the Miles operation have appealed to me as being most satisfactory and I have utilized it as a graded procedure in a series of 85 cases with 8 deaths—a mortality of 9.5 per cent. To do this operation in 2 stages, I think, makes it available to a larger group of cases and at the same time cuts down the mortality. I do not feel that it is applicable as a routine measure nor do I think that any type of a resection of the rectum or colon without judicious selection of cases is advisable.

The operative procedure must be supplemented by at least 3 other less formidable but satisfactory operations: first, colostomy and subsequent posterior resection; second, local excision without exploration of the abdomen and leaving a sacral anus; third, segmental resection with preservation of the sphincter muscles. With the last named operation I have had no experience nor am I convinced from a study of end-results of cases done by some of my colleagues that it has a very wide field of usefulness.

Resection leaving a sacral anus and without abdominal exploration is a popular technique now among German surgeons and undoubtedly has a field of usefulness particularly in obese individuals, but my preference is not to do a radical operation when there are liver metastases—and if one does not explore the abdomen one only guesses at their presence or

absence—but rather to have the new stoma in a position where it may be handily dealt with when the necessity for attention to it develops. It is my considered opinion that a sacral anus is much more undesirable than an inguinal stoma. The only advantage I can see that the sacral colostomy has is the inability of the patient to view it.

It is beyond the scope of this paper to discuss the technical details of the two-stage operation by an abdomino-perineal resection of the rectum except very briefly. The first stage of this operation consists of an abdominal exploration with a search for local and distant metastasis and the establishment through a stab wound of a single-barreled colostomy in the left groin. I prefer to make the exploration through a low mid-line incision and believe that it is of the utmost importance that a careful examination of the abdomen from above downward be made with palpation of the liver, aortic glands, glands in the bifurcation of the common iliac artery, and finally, the growth, in the order of sequence. The growth is always foully infected as often are the organisms which have extended into the peri-colonic tissues, making manipulation dangerous and likely to produce peritoneal contamination.

The second stage of the operation takes place at a period of from 3 to 6 weeks following the establishment of the colostomy. I have chosen to do this second stage in the reverse order of the usual procedure. The exploration having been accomplished at the preliminary operation, the surgery of the second stage is confined practically entirely to the pelvis. The rectum is mobilized from behind up to the peritoneum, then encased in a rubber glove, the whole segment thrust back into the pelvis and the wound closed. This stage of the operation is accomplished under sacral anesthesia.

The dissection is as wide as is possible to make, sacrificing the levator muscle, cleaning out the ischiorectal fossa, making as wide-spread blocked dissection of the pelvis as one may. Frequently I have removed a part of the prostate and both seminal vesicles in this mobilization. After completing this maneuver, the patient is turned on his back and under gas anesthesia the low mid-line incision is re-opened. The abdominal part of the operation consists of ligation of the inferior mesenteric artery after identification of the ureters on both sides, removal of the whole segment of the bowel below the colostomy including, of course, the mesentery of the sigmoid, which Mr. Miles considers as important a dissection as the removal of the axillary glands in the course of an operation for cancer of the breast, and finally accurate peritonealization and the manufacture of a new pelvic floor.

This operation is not time consuming in any of its stages. It is not a shocking operation, loss of blood is insignificant, and save for the economic factor secondary to a long convalescence, and two laparotomies there are no advantages which the one-stage procedure possesses over it that I am aware of. I have been able with increasing experience to apply it to 46 per cent of the total group of cases as they come to operation. That means

almost a routine application of it because only 50 to 60 per cent of the total group as they come to operation are resectable because of metastases.

Of no insignificant importance is the postoperative treatment of these cases. Complications are more prone perhaps to follow operations on the colon and rectum than radical operations of the upper abdomen and pelvis. The lethal factor most often encountered is, of course, peritonitis. This does not come from failure of the suture lines but rather from spread of organisms which are around the growth during its mobilization. The two factors which increase the permeability of the growth on the colon wall are ulceration and obstruction and one or both of them is present in cases of any long standing.

The careful preliminary preparation of these patients is a strong safe guard not only in avoiding a certain amount of contamination but in building up the individual's resistance to infection. The practice of insisting on abstinance from fluids of any kind during the first 48 to 60 hours is, I believe, an exceptionally important one. Adequate amounts of narcotics are supplied and these two practices insure a quiet gastrointestinal tract, free from peristalsis. A practical test of the time to begin the administration of food and drink is the passage of gas from the colostomy. Adequate hydration is accomplished by administration of 3,000 to 4,000 cc. of fluids by hypodermoclysis or venoclysis during each 24 hours of the early postoperative period. Blood transfusions likewise, in the case of the graver risk than the average, are employed advantageously.

Parotitis occurs 17 times more often following operations on the colon and rectum than in a general surgical practice. The use of radium applied as early as any swelling is noticed in the parotic region has, in my experience, favorably influenced the prognosis. The important point in the use of radium is to use it early and in small doses. We have been content to make 4 applications, 8 hours in duration at intervals of 8 hours of 4 fifty-milligram tubes.

The postoperative wound is not touched for the first 72 hours except to change the outside dressings. There should not be a great deal of drainage. At the end of 72 hours the gauze pack should be removed and irrigations begun. I have made it a practice to drain all these cases. After the posterior part of the operation, a few of the stitches are removed from the posterior wound and a small gauze pack inserted to control oozing. I believe this is better removed early in the convalescence and may be accomplished painlessly if one administers barbiturates freely and soaks the pack preliminary to its withdrawal. Subsequent irrigations of the wound two times a day with either a physiological solution of sodium chloride or a 1 to 5,000 solution of potassium permanganate keep down infection and promote healing. The large granulating surfaces take from 2 to 3 months to heal entirely but occasionally one is astounded at the rapidity of the process.

The care of the colostomy is an important consideration and is satisfactorily accomplished depending upon 2 factors—first, the attitude of the patient toward the colostomy, and second, the type of apparatus used. I have long since given up all complicated and cumbersome types of apparatus and have been content with a small belt which has a flat rubber pad made to fit over the stoma.

The cleansing and irrigation of the bowel once a day establishes a bowel habit early and permits one to empty the colon completely for a period of at least 12 hours and sometimes longer. An adequate dietary regime assists in the comfortable care of a colostomy. Carbonated drinks should never be used. Beer and excessive amounts of other fluids tend to keep the bowels loose. We have worked out a fairly satisfactory diet for these patients and find that so long as they stick to it there is no discomfort from the colostomy so long as the stools are formed. When the stools are liquid, no matter what type of apparatus is used, a colostomy is intolerable.

It has become almost axiomatic that carcinoma of the large bowel and rectum are favorable of prognosis if only they can be extirpated successfully in a reasonable length of time after their development. The statistical data from a large series of cases of cancer of the colon and rectum which I studied showed a better prognosis than was evident in cancers elsewhere in the gastro-intestinal tract, treated surgically. I studied this series of 753 cases of colonic and rectal cancers successfully extirpated over a long period, being particularly interested in the end-results. Of this group there were 300 cases of cancer of the rectum and recto-sigmoid, 266 of the left colon, and 187 of the right colon. These growths were all graded according to Broders' index of malignancy, and the incidence of 5-year cures of the total group showed 63 per cent of all Grade 1 cancers, 51 per cent of Grade 2, 31 per cent of Grade 3, and 24 per cent of Grade 4 living and without demonstrable recurrence. Likewise the study showed that the right colon was more favorable than the rectum from the standpoint of prognosis.

Five-year cures were noted in 57.6 per cent of the right colonic lesions, 47.7 per cent of the left, and 38 per cent of the rectal, or an average for the large bowel and rectum of 45.8 per cent 5-year cures. This was done with an operative mortality which averaged at around 10 per cent, and with an operability which ranged from 50 to 65 per cent. I would make a point that the operability is an influencing factor in prognosis and that it is of the utmost importance that one extend the scope of operability, widen the selection of cases to take in the border-line cases, and to accept rather than refuse this group because of the likelihood of an operative mortality. I believe that an operative mortality of 10 per cent is a perfectly justifiable and satisfactory one and that if one by careful selection and elimination of bad risks, operating upon only the readily mobile cancers found in sturdy individuals, succeeds in reducing this mortality by half or more, the accomplishment is perhaps not a praiseworthy one.

With the improvement of technical details, the recognition of such fundamental principles as graded operations, preliminary preparatory measures, and individualization of cases for selection of operative maneuver, marked advances have occurred in surgery of the rectum and colon; nevertheless, it is a distinct disappointment to recognize that there has been small decrease in the time that these individuals allow to elapse after the first symptom of cancer at this position of the ailment presents itself.

The average of 10½ months from the time the patient knows of the initial symptoms of cancer of the rectum until he seeks the physician's advice is still infinitely too long to be tolerated. The obvious corollary is that with more frequent physical examinations which should always include a rectal examination, and if possible a proctoscopic examination, and increasing propaganda to render the laiety more "colon conscious," our efforts will be rewarded.

Earlier recognition of lesions unquestionably will give better figures in the end-result statistics because the patient will come to operation at a stage before the dissemination of malignant cells has taken place into the regional lymphatics or more distant viscera.

President Manning: I want to say to Dr. Rankin that I personally —and I think I voice the feelings of this Society—am proud to claim him as a North Carolinian. We appreciate his coming here to address us and I want to thank him again, personally, and for the organization. (Applause)

It has been the custom for a number of years for each Section of the Society, each scientific group, to select one member of that group to read a paper at the General Sessions. The next paper on the program is in this group, "The Use of Ether in Peritonitis and Other Infections," by Dr. Roy B. McKnight, of the Section on Surgery.

Dr. McKnight! (Applause)

Dr. Roy B. McKnight: It is reported that in one year's time in the United States something over 20,000 people died as a result of appendicitis, the vast majority of which deaths were due to peritonitis. If that is the case then it certainly behooves us to look around and see if we can't find some means by which this dreadful mortality can be in a small degree perhaps lowered.

For six years I have been using ether directly in the abdominal cavity in all cases in which there was any evidence at all of localized or generalized peritonitis, and I want to report to you today my series of appendicitis cases with localized abscess in which I have used ether as a routine treatment.

THE USE OF ETHER IN PERITONITIS AND OTHER INFECTIONS

R. B. McKnight, A.B., M.D., F.A.C.S., Charlotte, N. C.

Souligoux, in 1912, used ether in the peritoneal cavity in a case of general plastic peritonitis following rupture of the cecum. Colostomy was performed and the abdomen drained. Recovery was prompt and uneventful. The next year he reported 36 cases of peritonitis with only two deaths, neither of which could possibly be attributed to the use of ether intraperitoneally. This is not the first instance of ether therapy in peritoneal infection, but is, so far as I can determine, the first series reported. Saliba of Elizabeth City, North Carolina, did much to popularize this adjunct to the treatment of peritonitis two decades ago. de Tarnowsky in 1914, reported a series of 30 cases of peritoneal infection with no deaths. In the same year, Phelips and Tartois used ether intraperitoneally in 16 cases of peritonitis in children and compared the results with 16 similar cases in which ether was not used. They were enthusiastic over the results. Many French, German, Italian and a few American surgeons have reported on its use in peritonitis and have been almost unanimous in their impression that it is of distinct value in lowering the mortality, lessening the degree of infection and giving the patient a much smoother convalescence. A few have warned against the use of ether for rinsing out the diseased abdominal cavity, particularly Fantozzi, an Italian, in 1920, who contended that the hemolytic action was too powerful, it was too weakly antiseptic and induced such intense cold, when the viscera should be kept warm, that its use was not justifiable. These conclusions were based largely on observations made on laboratory animals. In a subsequent report, however, he admitted that if ether is used for moistening gauze sponges, packs, etc., then the desired benefits could be realized. He described 13 cases showing its advantage. Seigwart in 1922 reported 11 cases of diffuse septic peritonitis with one death occurring 18 days postoperatively from gangrene of the lung. Corbett, in 1917, in studying peritoneal adhesions stated that all the strong antiseptics seemed to do harm in the peritoneal cavity and to intensify peritonitis rather than inhibit it. Ether alone offered a possible exception. He referred to the work of Waterhouse in England and Saliba in America stating that they had established the use of ether in the peritoneal cavity in proper doses. He concluded that ether seems to be the most satisfactory chemical means of combatting infection, but that it is not devoid of danger and is not always effective. Schleussner, in 1927, reported 113 cases of severe perforation peritonitis in which ether transfusions were used. There were only 12 deaths. A study of these deaths as reported by him will convince one that death was inevitable in all, regardless of what was done. In no case could death possibly be traced to the use of ether.

As a basis for my report, I am using 26 cases of suppurative appendicitis with abscess. In a series of 190 consecutive primary appendectomies,

there were 26 appendiceal abscesses with local or moderate general peritonitis, 1 with a diffuse general septic peritonitis and a "silent abdomen," 95 acute or subacute cases, 65 chronic cases and 4 normal. A local colleague kindly gave me permission to use a series of 20 consecutive cases of suppurative appendicitis with abscess formation in which ether was not used for comparison.

Under ether or low-dosage spinal anesthesia, a McBurney incision is made and the abdomen opened sufficiently wide to allow a reasonably good exposure of the pathologic process present. If pus is not present on opening the peritoneum, the abscess is localized and evacuated, the pus being removed with sponges and the suction apparatus. If the appendix is not easily located and mobilized it is left alone, otherwise it is removed in the usual manner with eversion of the stump. In four of these cases the appendix was not removed. After cleansing the cavity as thoroughly as possible of pus, the area is flushed out with sterile warm normal saline solution, sucking the saline out about as fast as it is introduced. The abdominal wall is slightly elevated by gentle traction with a small retractor or with the assistant's index finger hooked underneath the peritoneum; ether is then introduced, pouring from 2-4 ounces directly down into the cavity; after a minute or so it is sucked out and the process repeated several times. The purpose in elevating the abdominal wall is to facilitate the ether to penetrate the various folds and crevices adjacent to the abcess cavity and permit the fumes from the boiling ether to diffuse throughout the abdominal cavity. Little ether is left in except in the form of vapor or that which may trickle away, which rapidly evaporates. All these cases are drained, using one or two soft Penrose drains. The abdomen is closed in the usual manner and the routine postoperative supportive measures carried out.

When the ether comes in contact with the tissues, they at once blanch, turning a pale pink due to vasoconstriction action. In a few minutes, after the ether bubbles away or is sucked out, the tissues assume a rich pink or red color, definite evidence of an active hyperemia. There may be a slight acceleration in the respiratory rate.

When the patient returns to his bed he is quiet and convalescence has been, with one exception, entirely smooth. This patient, a boy of 15, became quite distended the seventh postoperative day and a small loop of gut appeared in the wound. Enterostomy was done and the wound repaired. He subsequently developed a lung abscess which cleared up under postural drainage. He eventually recovered and played guard on a football team the following fall. Another patient remained in the hospital four weeks, and two three weeks. With the exception of these four, the longest stay in the hospital was eighteen days and the shortest nine days. In those I have been able to follow up there has been no evidence of peritoneal adhesions.

Chart I—A composite temperature and pulse clinical chart of (1) 190 primary appendectomies contrasted with (2) 26 suppurative appendicitis cases with abscess formation in which ether was used peritoneally. The pulse and temperature curves of each are practically parallel showing the same smooth convalesence.

Chart II—A composite temperature and pulse clinical chart of (1) 20 cases of acute appendicitis (6 gangrenous) contrasted with (2) 26 suppurative appendicitis cases with abscess formation in which ether was used intraperitoneally. It is interesting to note that these curves are nearly identical with those of the entire series of 190 cases. The initial pulse rate before operation is slightly higher in the acute appendicitis series than in the whole series, the initial temperatures are approximately the same. The first postoperative day shows a lowering of the pulse rate as contrasted with the whole series.

Chart III—A composite temperature and pulse clinical chart of (1) 20 consecutive suppurative appendicitis cases with abscess in which ether was not used compared with (2) 26 suppurative appendicitis cases with abscess in which ether was used. Both the temperature and pulse curves in the series in which ether was not used are higher and more irregular, showing a more stormy convalescence. There were three deaths in this series.

Chart IV—Self-explanatory. Shows the smooth convalescence in a critically ill patient with a decompensating heart complicated with a ruptured abscess of the cecum.

Chart V and VI—Showing the effect of ether on the temperature and pulse rate in a patient with traumatic septic arthritis. The drop in the temperature is interesting. The pulse rate dropped very little, but it stabilized and became regular. Recovery, with a stiff joint, was prompt after the institution of ether irrigations.

Ether is of value in other infections. In traumatic septic arthritis excellent results can be expected; there is a rapid drop in the temperature to normal and the infection clears up rapidly. In two cases of peritonitis following criminal abortion, there was one death, the other made a phenomenal recovery. In a series of about 40 cases of salpingitis, convalescence was uniformly smooth and there were no deaths. Ether will clear up infected postoperative superficial infections more rapidly than any method of treatment I have used. Peripheral wounds do well after flushing them with ether and employing primary suture usually without drainage. In fact it can be used with decided advantage in almost any type of infection even in the pleural cavity in empyema. My experience in using it in diffuse septic perforation peritonitis has been limited to only one case, which died.

The action of ether in combatting septic conditions resolves itself into two questions: What effect does it have on the bacteria and how does it assist vital resistance?

Ether does have some bacteriacidal action. It has been proved to be efficient in sterilizing albuminous culture mediums. It is a fat solvent and thereby brings about an increase in the permeability of the bacterial cell wall. Certainly the virulence of the infecting organism must be materially lowered.

It assists vital resistance through the induction of an active hyperemia and a resulting influx of lymph bringing with it more of the various immune bodies. Nutrition to the tissues is increased by action of the hyperemia. Ether is a cell proliferant. This is true in both plants and

animals. Probably the most important action is the increase in phagocytosis. Small doses of ether stimulate the leucocytes to greater activity whereas large doses paralyze them. The leucocytes having a lipoid surface will become more flexible, plastic and mobile after having absorbed ether in small quantities. The activity of the leucocytes is increased and consequently there is an increase in their phagocytic function.

That ether does not hamper the defensive agents of the body and the resistance of its tissues is proved by the fact that it does not in any manner interfere with the healing of an aseptic wound.

Conclusions: 1. Ether is not a panacea in infections. There are many times in which it is not efficient, but it will give happy results oftimes when a case looks hopeless.

2. Its efficiency is due to (a) slight bacteriacidal action, (b) induction of an active hyperemia with an additional influx of immune bodies, (c) increased nutrition and (d) increased phagocytosis.

3. Convalescence following its use in appendiceal abscess as determined by composite temperature and pulse curves, is closely parallel to the acute uncomplicated cases and to the whole series of appendicitis cases.

4. It is not devoid of danger and should not be used in excessive doses, never over 250 c.c.

5. With the possible exception of recent work on anti peritonitic vaccines, it is probably the most efficient weapon we have at our disposal in combatting that dreaded condition—peritonitis.

President Manning: I have held for a number of years that dentistry is or should be a medical or surgical specialty. I rejoice in the increasing association of the dentists and the practicing physicians.

It is my pleasure at this moment to introduce Dr. J. A. Sinclair, Doctor of Dentistry, from Asheville, North Carolina, as a guest speaker on this occasion, representing the State Dental Society. His subject is, "Oral Diagnosis."

Dr. Sinclair! (Applause)

ORAL DIAGNOSIS OF THE BLOOD DISEASES

J. A. Sinclair, D.D.S., Asheville

Mr. President, and Members of the North Carolina Medical Association:

It is a great honor indeed to represent the North Carolina Dental Association at your meeting. I bring greetings from the President and members of our association.

It is a pleasure to note the close association of the two professions which recent years have brought about. During 1933 through the influence of Dr. Bloodgood, there was organized "The Association for the Study of Neoplastic Diseases," both physicians and dentists participating in this organization. Last year in Chicago the "American Association for the Advancement of Oral Diagnosis" was formed; this group is composed of members of American Medical and Dental Associations and the Cana-

dian Medical and Dental Associations. In Chicago, this year, the Chicago Dental Clinic, perhaps the greatest of all dental clinics, created a section for "Medico-Dental Relations." It proved to be the most interesting section of that great clinic.

This coöperative spirit has lessened the line of demarcation between the two professions. When the physician knows more of dentistry, which he should, and the dentist knows more of medicine, which he must, then and not until then will the line of demarcation be obliterated.

Billings in 1912 developed the idea of "Focal Infection." The medical and dental professions received his theory wtih open arms. Oral diagnosis did not keep pace with the enthusiasm of his idea. The extraction of teeth for every ailment seemed to be the thing to do. Many of these unfortunate victims with lost functional teeth replaced by non-functional ones, their systemic disorders still present, suffer until a belated correct diagnosis brings relief. Thus we see the importance of a correct diagnosis which should be corroborated by a blood and urinary examination thus rendering these unfortunate patients relief.

It has been said, "A little knowledge is a dangerous thing." We see this exemplified as a result of our "educating the public." Many patients, sidestepping the physician, seek relief from the dentist. An X-ray is taken and a number of teeth extracted, postoperative infection follows, a physician is called, a thorough examination is made, we find we were dealing with a severe infection or a fatal blood disease.

Discussion of the oral findings in all systemic diseases would lead us to the by-path of every department of medicine. You are all familiar with the oral diagnostic signs of diphtheria, scarlet fever, mumps, measles, and many other infectious conditions.

The literature of the past few years has been filled with the descriptions of such lesions as syphilis, tuberculosis, malignant and non-malignant growths and many other pathological conditions with which we are more or less familiar. This audience will be more interested in the diagnostic recognition of the conditions which the diseases of the blood present, as in chronic secondary anemia, idiopathic microcytic anemia, pernicious anemia, aplastic anemia, chlorosis, purpura, lukemia, agranulocytic angina, septicemia, and bacteremia. To understand and properly diagnose these blood diseases an understanding of hematology is necessary. The origin and distribution of mature blood cells, the recognition of pathological cells, and the entrance into the blood stream of the many young cells is necessary in the understanding of these diseases. The presence of abnormal, toxic or immature cells in the blood stream, indicating a severe infection or blood disease, should be a warning against oral operations. If it becomes necessary to operate the patient should know the seriousness and probable outcome of such procedure.

The oral manifestations of the blood diseases present a variety of conditions, from simple bleeding of gums, to advanced necrotic condition resembling Noma.

Pernicious Anemia. In pernicious anemia there may be a pain resembling a burning sensation along the side of the tongue, radiating to the tip, the tongue may be smooth, pale and lifeless resembling the tongue of pellagra. The blood picture in pernicious anemia, as you are all familiar, is characterized by a high color index, a reduction of red cells and hemoglobin, and a normal or reduced white cell count, the characteristic finding in the stained blood film is the presence of many large round or oval red blood cells which are well filled with hemoglobin. Nucleated red cells are frequently present and may be of all types. The fact that megaloblasts are often more numerous than normoblasts has been regarded by some as of diagnostic importance. Leukopenia is usually present, a reduction in the platelets may occur but rarely to a severe stage. A reduction in neutrophiles and a shift to right, is usually found in pernicious anemia. This is one of the few diseases in which this occurs.

Microcytic Anemia. This form of anemia occurs more usually in women; it is confined to the reproductive period, and persists in varying intensity throughout the child-bearing period; it is much aggravated by pregnancy, and tends to spontaneous cure after the menopause. It is frequently associated with hypochlorhydria or achlorhydria.

This condition is a "secondary" or "chlorotic" anemia resulting from a deficient production of hemoglobin. Whereas the red cell count is only moderately reduced, the hemoglobin percentage is remarkably lowered, so that the color index may be as low as 50 per cent of its normal value.

The haematological features of this disease are anemia, microcytosis, anisocytosis, and changes in the staining reaction of the red cells. In blood films from untreated cases, most of the red cells appear as unstained discs enclosed by pink rings of varying widths, often barely distinguishable; many of the cells are oval or biscuit shaped, the stain being limited to the ends of the cell; distributed irregularly among these pale (hypochromic) cells there are always a few (one to five per cent) deep stained (orthochromic) cells, which appear to be normal cells, though on measurement they are found to be too small.

There is bleeding from the gums and an associated stomatitis which at first glance suggests the anemia of the Addisonian type.

Secondary Anemia. The same oral manifestations as in pernicious anemia may be present. The blood picture in these secondary anemias varies according to the primary cause. The color index is always below 1. The hemoglobin percentage being low. Anemia due to infection, disturbance of the ductless glands, and the invasion of malignant growth of the bone-marrow and a leukemic infiltration, all present a chronic secondary anemia. In the secondary anemia where the hemoglobin per cent is above 65 oral operations may be performed. The lesions usually heal without incident. In pyorrhea, the lessions heal, but recurrence is apt to take place.

Aplastic Anemia. In aplastic anemia, which occurs most frequently in young adults, there is a marked hemorrhagic tendency with bleeding

from the mucous membrane into the skin and subcutaneous tissue. There is a marked decrease in the red blood cells, white blood cells and platelets of the peripheral blood. The red cells may fall below one million and the white blood cells to only a few hundred per c.mm. The platelets may disappear almost entirely from the peripheral blood. There is rarely poikilocytosis or anisocytosis and each cell appears to contain the normal amount of hemoglobin. Nucleated red blood cells and various forms of polychromatophilia are usually not observed. This form of anemia is often diagnosed as pernicious anemia.

Chlorotic Anemia ( ). The lips and the gingivae are pale, the gingival margin has a bluish or yellowish red tinge. Caries of the teeth progress very rapidly and there is a tendency to periodontal involvement. This form of anemia is seen in the later stages of most infections, in the cachexias of phtisis, in syphilis and malignant disease, in lead poisoning, and after severe hemorrhage. It may also occur as an independent disease known as chlorosis, which formerly was very common but has been met with only rarely in recent years. Chlorosis depends on a diluted state of the blood, the volume of which is increased; the oxygen capacity of the hemoglobin per unit of volume of the blood is therefore diminished and the number of red cells per c.mm. of this diluted blood is lowered.

The red cells are hypochromic, though irregularly stained, a few deep stained (orthochromic) cells being usually present together with the colorless discs. The size of the cells are smaller than in health, and anisocytosis is often considerable. In severe cases and in the later stages of the condition regeneration forms of red cells are commonly seen.

In recovery from an attack of chlorosis it is not uncommon to find an increased number of red cells over the normal.

The white cells may show no variation from the normal, though leucocytosis may be present in a slight degree. The blood picture is usually of lymphoid type, the lymphocytes are large mononuclear cells being relatively increased in number, but there is rarely any absolute increase in the number of these cells. There is an increase in platelets.

Purpura. In purpura the lesions are associated with bleeding of the gums and the mucous membrane of the mouth. The bleeding from the mucous membranes varies from a slight oozing to hemorrhages so extensive as to result in a severe anemia.

Characteristic blood findings are present which are highly important from the standpoint of diagnosis. They are: (1) reduction in the number of platelets, (2) a delayed bleeding-time, (3) nonretractility of the blood clot, and (4) normal clotting-time.

The blood platelets are usually reduced from a normal average number of 300,000 per c.mm. to 60,000 per c.mm. or less when active bleeding is present.

Lukemia. In chronic lukemias the most constant symptom is the constant bleeding of the gingivae. There may be extensive hyperthrophy

of the gums. Ulcerations of the gums, cheeks and tonsils often resulting in gangrene. A super-imposed Vincent's infection is usually present.

There is a marked tendency to stomatitis, gingivitus, ulcerous angina, noma, and etc.; a final hemorrhagic diathesis and numerous complications because of great susceptibility to infection which often takes a rapid fatal course.

In chronic myelocytic leukemia it is the rule to find the total white count above one hundred thousand per c.mm. Counts far above this are frequently seen. It is the granular series which is chiefly responsible for the high total count. Eosinophilic leukocytes are constantly increased in actual number and slightly in percentage. This is of diagnostic help in differentiating true leukemia from an intense leukocytosis of infection. Myelocytes are always present; usually numerous, and occasionally forming half of the total white cells. Their percentage tends to become greater as the total count increases, especially in the late stages of the disease. There is an associated anemia at first not severe, the hemoglobin falling to perhaps 60%; the red cells to 3,000,000. As the disease progresses the anemia becomes more severe.

Counts of the platelets show that as a rule the number in an early case is above normal; some very high figures have been reported. As the disease progresses they may return to normal or a decrease.

By far the greatest incidence of leucemia in children lies in the acute types with the acute myelogenous leucemia even more prevalent than the acute lymphatic. The literature includes only 32 cases of chronic leucemia in children. The differentiation, however, between acute and chronic leucemias is often difficult.

It has been repeatedly stressed that in children, even more than in adults, the clinical difference between acute and chronic leucemia, lies not only in the duration of the disease but (and principally so) in the fact emphasized by Fraenkel that acute leucemias begin with those symptoms with which chronic leucemias end. It must be added, however, that in children chronic myelosis often runs a course so much more rapid than in adults, that on the duration alone one would be tempted to regard it as an acute case, were it not for the absence of the classical symptoms of acute leucemia, namely, hemorrhagic diathesis and an ulcerated mouth. One thing, however, is of great theoretical interest; when a case of chronic myelosis in a child develops the above mentioned hemorrhagic and mouth symptoms, although the downward progress becomes much more rapid than in a true acute case, the blood picture remains typical of chronic myelosis, even though the case is now an acute one clinically.

Whatever our conception of acute leucemia and its relationship to the chronic form may be, chronic myelosis is a definitely independent clinicopathologic entity. It is a hyperplasia of the myeloid (granulocytic) tissue of the bone marrow and a metaplasia of the myeloid tissue in all the organs where embryonal totipotent mesenchyme is present, myeloid metaplasia in the spleen, liver, and lymph nodes. Hematologically, it expresses

itself qualitatively in the presence of immature myeloid cells (granulocytes) from the myeloblast to the metamyelocyte, and quantitatively, in a very high leucocyte count, from 50 to several hundred thousand cells per cubic millimeter. The latter, the very high count, is not an essential feature, since the disease may run its entire course as a subleucemic myelosis with 20 to 50,000 cells, or even as an aleucemic form, with 1 to 10,000 cells per cubic millimeter of blood.

In order of their frequency the various forms of leucemia would appear as follows:

Children	*Adults*
1. Acute myelosis	1. Chronic myelosis
2. Acute lymphadenosis	2. Chronic lymphadenosis
3. Chronic myelosis	3. Acute myelosis
4. Chronic lymphadenosis	4. Acute lymphadenosis

Very striking features of the history, in a large majority of cases, are numerous infections, from which the children had suffered previously, not infrequently with one infection following immediately upon another. (Eisenberg & Wallerstein).* In fact a history of several infections succeeding each other at short intervals should always call for a thorough blood examination.

In chronic myelocytic leukemia the platelets may vary widely independently of the condition of the patient, but in chronic lymphocytic leukemia the lower the platelet count, the worse the general condition. Hemorrhage may occur in the presence of a normal platelet count but on the other hand, purpura may fail to appear for some time in spite of a greatly lowered count, even below 60,000.

In chronic lymphocytic leukemia a high total leukocyte count and an enormous lymphocytosis, characterize the blood picture of this disease. It is a montonous gathering of lymphocytic elders in contrast to the riot of youth of the chronic myelocytic form.

The white cell count as a rule will be found between 75,000 and 200,000 although higher and lower figures are not uncommon. The typical case will have 90 per cent or more lymphocytes.

An anemia may be present early and is a constant finding in the later stages of the disease. The hemoglobin per cent of 40 and the red blood cells below 2,500,000 per cubic millimeter are not unusual. A decrease in platelets is characteristic; slight at first, severe in the final stages.

Agranulocytic Angina. Agranulocytic Angina is a disease of unknown etiology characterized by chills, fever, marked prostration, angina, a remarkable reduction in the polymorphonuclear neutrophil cells of the peripheral blood and usually a rapidly fatal course. Since 1922 four hundred seventy-three cases have developed in the United States alone.

The striking feature is a pronounced leukopenia which may progress to such an extent that the polymorphonuclear neutrophil cells almost completely disappear from the peripheral blood. The reduction at first

* The Journal of Laboratory and Clinical Medicine, April, 1934.

is only in the granulocytes but later the lymphocytes and monocytes are also diminished. There is no alteration in the red blood cells unless the illness is prolonged, and then an anemia with a low color index may develop. The platelets are usually normal or increased except when the illness is prolonged and may then become diminished. There is always an associated ulcerative lesion involving the mucous membrane of the mouth, terminating in a necrotic area involving the mouth and throat. This lesion is usually superimposed with fuso spirochetal infection.

Dr. William Lintz (Dental Cosmos, April, 1934) in speaking of septicemia and bacteremia, says:

"To be able to recognize the presence of bacteria in the blood stream, so that we may avoid dental interference or forewarn the relatives of the patient of the seriousness of the condition if oral operation becomes necessary, this will save you many weary hours of anguish and law suits, after the death of the patient, which almost invariably occurs. I have repeatedly refused to testify against the dentist who is ultimately unjustly blamed for the fatal outcome. For the blood-stream infection was not produced by him, but was there before he began his work. Petechiae are highly diagnostic in these cases. They consist of pin-point to millet-seed size, bright red, sharply demarcated spots, assuming a dusky red color, as they grow older, located most frequently on the mucosa of the upper and lower lips and the alveolar processes. They are also found anywhere in the mucous membrane of the mouth and throat. They are not bacterial emboli, although they frequently contain bacteria. They are minute hemorrhagic extravasations, the result of alteration in the capillary wall. They come and go singly as well as in groups. Bleeding from the mouth and gums and subcutaneous hemorrhages are frequently present. Abscessed teeth and bone, ulcerations, toxic rashes, marked anemia or even slight jaundice are exceedingly frequent. A positive blood culture will confirm the diagnosis and should be instituted before any dental work is begun."

In a great many of these blood diseases we see a superimposed Vincent's infection. These infections, if they do not respond promptly to treatment, should be regarded as manifestation of a serious disease. A thorough blood examination should be made in all these cases before operative procedure is attempted. It is a routine in our practice to take the hemoglobin per cent in all operative cases. If found to be below 70 a thorough blood analysis is made. In following this routine we have discovered many conditions requiring the service of a physician.

I am indebted to Schilling, Piper and Farley, and Price Jones for many hemotological references.

President Manning: The Secretary has several announcements to make.

. . . Secretary McBrayer made several announcements, among them being the following:

Secretary McBrayer: I am requested to announce and do so with a great deal of pleasure, or to at least call your attention to the scientific

exhibits in the rear of the hall. They are very interesting. All of them except one are by our own local men and I am sure you will be pleased to look at them. The other is an exhibit by our State Cancer Committee of which Dr. Carpenter is chairman, and he has been aided by Dr. Parks of the national organization.

PRESIDENT MANNING: The Chair recognizes Dr. D. A. Dees if he is in the hall.

DR. D. A. DEES (Bayboro): Mr. Chairman, the State of Georgia Medical Association, desiring to show its friendliness to us, has today sent two of its distinguished sons here as delegates and at this time I am pleased to present Dr. D. D. Walker of Macon and Dr. C. W. Roberts of Atlanta. (Applause)

I am sure that the Society will wish to extend to them every privilege and courtesy that we can bestow.

I also want to state that Dr. Roberts was a classmate of mine and I take a peculiar interest and pride in presenting him to this Society. (Applause)

DR. C. W. ROBERTS (Atlanta): Mr. President, Mr. Secretary, Members of the Medical Society of the State of North Carolina, Distinguished Guests, and Friends of Medicine:

I am advised that the Constitution and By-Laws of our respective societies do not prescribe in detail the duties of a fraternal delegate. I am sure, however, at this late hour there would be unanimity of opinion on the point that an attempt at either scientific exploitation or oratorical effort is not justified.

It was my pleasure six years ago to come from the Medical Society of Georgia as a fraternal delegate to the Medical Society of the State of North Carolina at its meeting here. I carried back to our Society at that time what I think might be termed a rather glowing report of a very fine scientific program and an enormous amount of fine fellowship.

In Georgia we are still undertaking to live up to the slogan which was found in a street car in Atlanta at one time which said, "Get acquainted with your neighbor, you might like him." (Laughter)

Our President sent us here to bring to you the fraternal greetings of the Medical Society of Georgia, to thank you for the reception which you have given our delegates in the past, and to invite you to return the compliment by sending delegates to our meeting at Augusta which is to be held from the 8th to the 11th of this month.

In conclusion, to use a slogan which has been made famous by a popular movie star, slightly paraphrasing it to suit the occasion, I will say, "Come down to see us some time." (Laughter)

PRESIDENT MANNING: The next paper is, "Diagnosis and Treatment of Conjunctivitis," by Dr. S. R. Taylor, of Greensboro, from the Section on Ophthalmology and Otorhinolaryngology.

ACUTE CONJUNCTIVITIS

SHAHANE R. TAYLOR, M.D., Greensboro, N. C.

Mr. Chairman, Members of the North Carolina Medical Society:

Acute conjunctivitis is a very common condition. The vast majority of cases are treated by the general practitioner. This is economically and scientifically as it should be since the services of an ophthalmologist are entirely unnecessary in the absence of complications. It is caused by a large variety of bacteria: notably, Koch-Weeks bacillus, pneumococcus, Morax-Axenfeld diplobacillus, micrococcus catarrhalis, streptococcus, Klebs-Loeffler bacillus, and gonococcus. Most of these are readily demonstrable during the first two days of infection but are difficult to obtain thereafter.

The infection is frequently carried from the nose by way of the lacrimal duct but is also transmitted from person to person by the hands, towels, wash basins, swimming pools, etc. Prophylactically it is important to isolate the patient in so far as these latter modes of transmission are concerned.

The incubation period varies from 24 hours to three days, depending upon the offending organism.

The symptoms vary in character and severity, depending upon the type and virulence of the organism. In general, however, they are: Increase in tearing, feeling of a foreign body in the eye, sticking of the lids on awakening, purulent discharge, blurred vision from secretion floating on the cornea. Both eyes are usually involved but it may occur unilaterally. The eyes are uncomfortable but true pain is absent; its presence indicates that something more than acute conjunctivitis is to be dealt with: namely, iritis, keratitis, corneal ulcer, foreign body, or glaucoma. It is impossible to over-emphasize the importance of further investigation of a case of apparent conjunctivitis in which pain or headache are associated symptoms. The preservation of vision is very often at stake when these symptoms are present.

Acute conjunctivitis is easily differentiated from glaucoma, iritis, keratitis, etc. Details of this differential diagnosis can not be taken up in this brief paper but it seems sufficient to state that all of these present as their most characteristic symptom, pain or headache. Therefore, if a case of apparent conjunctivitis presents the symptoms of pain and headache it is advisable for the patient to be handled by someone exceedingly skilled in the treatment of these grave lesions.

Granting, then, that we have an uncomplicated case of conjunctivitis, what are we to do about it? The scientific treatment is based upon the type of organism present which implies a stained smear of the pus in every case. From a practical standpoint, a profuse purulent conjunctivitis is best treated by instillation of 20% to 25% argyrol solution as often as the pus forms, followed by irrigation of the conjunctival sac with normal saline solution. If this is not available the instillation of one drop of 20%

argyrol in the eye every fifteen minutes, followed immediately by bathing the eye in cold water, is usually satisfactory. As the amount of discharge decreases the interval between instillations is increased. At night the lids are thoroughly lubricated with vaseline to prevent glueing together. It is well to remember that argyrol solutions are unstable and should not be used longer than four days; conversely, under no circumstances, should argyrol ever be used over a long period of time as the silver salt will be taken up by the mucous membrane and permanently stain the conjunctiva. In cases with scant discharge argyrol is of little value but mercurochrome in 2% solution is more effective. In pneumococcus infections optochin is a specific, but, in my opinion, is so dangerous that it should never be used except by one trained in the treatment of eye lesions. Zinc sulphate is very efficacious in the Koch-Weeks infections in ¼% to ½% solution. One per cent silver nitrate brushed on the lids when there is a tendency toward chronicity usually gives excellent results. The wearing of smoked lenses during infections is soothing.

There is a condition common in infancy which apparently is poorly understood. This is congenital occlusion of the lacrimal duct which is practically always unilateral. This is due to failure of the lacrimal duct to become patent at its distal portion in the nose. It produces purulent conjunctivitis which will not respond to any medication dropped in the eye but can readily be cured by forcible irrigation of the lacrimal duct with syringe and cannula, using sufficient force to break through the thin partition and force this solution into the nose. Occasionally it is necessary to pass a lacrimal sound. Opening and clearing the drainage canal is sufficient to cure these cases. I see a number of these every year and almost universally they are unrecognized and have been treated with drops for months.

Gonorrheal opthalmia has for years been a dreadful condition for us to treat. However, if we get a case sufficiently early, instill 20% argyrol as often as the pus forms (every 15 minutes) and, in addition, irrigate the culdesac frequently with normal saline solution, they respond rapidly and are brought under control without much difficulty. The whole treatment of this condition, as well as of any acute conjunctivitis, is to treat the conjunctiva with argyrol as often as pus gathers in the eye during the acute purulent stage. I believe that if the men doing general practice will keep the above treatment in mind many cases of conjunctivitis may be prevented from acquiring further complications and ultimate loss of vision.

President Manning: The next paper is, "A Plea for Conservative Pelvic Surgery," by Dr. Kemp P. Neal, of Raleigh, from the Section on Gynecology and Obstetrics. (Applause)

A PLEA FOR CONSERVATIVE PELVIC SURGERY

By Kemp P. Neal, M.D., Raleigh, N. C.

The major portion of the average general surgeon's operating has to do with the organs of the female pelvis. So accustomed do we become to

removing one or more of these important organs that I'm afraid we often do not give due consideration to the important functions they are designed to perform. The sacrificing of an ovary or uterus is not as harmless a procedure as the removal of an appendix or gall bladder.

A great deal is known of the function of the female sex organs with reference to reproduction; but there is much to be learned about the influence of these organs upon the other systems of the body, particularly the nervous system. A normal healthy woman must be perfectly balanced, physically, mentally and sexually. Sex plays a more important part in human nature than many of us are willing to admit. I'm not speaking of extreme Freudian hypotheses in extremely abnormal women mentally or sexually, but of the average normal well rounded individual. Just how much sex life does play in the average woman's life is often not appreciated. Many times we look for a physical cause for many subjective symptoms when in reality there is no discernible pathological cause, but merely abnormal physiology. This is particularly true in treating certain nervous disorders in women which have as their causative background abnormally functioning sex organs. I'm speaking more particularly of the minor nervous states and not the extreme psychopathic states which have usually a pathologic nervous condition back of them. These symptoms are often varied and manifold and not merely vasomotor disturbances or vagatonia manifestations. They frequently bring about a change of personality as well as of physiognomy. The relation between sex hormones and the other glands of internal secretion is not well understood, but there is often a disturbance of metabolism after oophorectomy with resultant marked increase of weight. This is no doubt due to an interruption of the balance between thyroid, ovarian, and pituitary secretions.

With the advent of gland therapy and a newer knowledge of sex hormones, one might feel that we can more ably cope with these disorders of the female sex organs. In fact I'm afraid many surgeons by reason of these newer methods have become more radical and less respectful of these organs. Gland transplants have proved to be disappointing in most cases, and the administration of sex hormones by mouth or hypodermically has in my hands been far from phenomenal in obtaining good results except in a few cases.

The expense of using these agents, as well as the pain and nervous strain attendant upon their frequent daily, weekly, or monthly administration, is a factor to be dealt with. There isn't any question in my mind about the fact that patients who have to be treated over a long period of time become definitely increasingly nervous and subject to all sorts of subjective symptoms from which they frequently never recover. They may stop treatment at your hands, but you may rest assured they are being treated by someone else.

The average duration of active function of the sex organs in women is about thirty years. It is during this period of greatest activity that most diseases of the pelvis begin. Certain of them of course demand radical

and immediate removal. I refer to carcinoma of the fundus uteri or ovary. We no longer attempt to cure carcinoma of the cervix by hysterectomy, as best results are obtained by treating this condition with radium and X-ray or electro-surgery. Other diseases of these parts can be dealt with less radically as a rule, and with a minimum of sacrificing. In fact, infection and trauma, which are responsible for most of these disorders, if properly treated can be prevented from bringing such serious damage in most cases. Venereal disease is perhaps responsible for most pelvic pathology. If treated properly in the beginning its complications can be markedly lessened. I'm not going into detail with reference to treatment of these cases; but I do wish to stress the hypodermic administration of foreign protein during the acute and subacute stages of the disease when it reaches the adnexa.

I go so far as to say that in my opinion its use will very often help prevent the disease spreading from an infected urethra, vagina and cervix to the fallopian tubes and ovaries. I have frequently noticed early infection of the fallopian tubes subside rapidly within a few weeks with no palpable pathology. I have seen tubo-ovarian inflammatory masses almost melt with intragluteal injections of 10 cc. of aolan every three days. I have had occasion many times on the operation table to find very little evidence of disease in a pelvis which several weeks previously presented tubo-ovarian masses the size of large oranges or small grapefruit to the examining fingers. I remember definitely one case who came to operation several weeks after I last saw her with masses in the region of both tubes and ovaries. To my complete surprise instead of finding large tubo-ovarian abscesses with destruction of ovaries, I found tubes that had practically returned to normal size, though definitely thickened and with very few adhesions about them, the ovaries being practically normal. I have been impressed with the minimum of adhesions about the tube and ovary in cases treated by this method. The duration of temperature as well as pain is markedly shortened. I have found that many cases which surely would have to come to operation and probable sacrificing of organs, with the advent of foreign protein can be relieved without any operation at all, provided there is no retro-displacement of uterus and adnexa. I believe this retroversion and retrocession of the uterus with or without infection is responsible for many diseased conditions of the uterus and its appendages. Particularly cystic degeneration of the ovaries and hypertrophic endometritis are in my opinion due in a great many cases to displacement backward of the uterus with resultant disturbance in blood supply. For these cases I consider a simple round ligament method of suspension conservative surgery, as it is in a sense preventive surgery, i.e., salvaging organs which would in many cases have to be removed subsequently if allowed to remain retrodisplaced.

Another condition which in my opinion can be dealt with in a conservative fashion is endocervicitis with or without laceration. A long standing infection of the cervix, especially with laceration, is likely to produce a

constant source of absorption along the broad ligaments with resultant pelvic congestion, ovarian degeneration, and metritis, necessitating subsequent hysterectomy and oophorectomy. And of course the ever present danger of developing carcinoma initiated from a lacerated cervix is foremost in one's mind. Let's not forget the value of a curettage or biopsy for diagnosis in questionable cases unless one is sure there is no malignancy in the background. In a woman of child bearing age it is dangerous on this account to allow such conditions to exist until the menopause. Radical surgical procedures as repair or amputation sometimes preclude the advisability of future pregnancies. Fortunately for such cases we have the cautery or high frequency current for correcting these disorders. It is remarkable what a simple coning of a cervix will do to an infected lacerated cervix. It is so easily accomplished in the office with little or no confining disability that I heartily recommend its use in such cases as I have described. I believe many cases of incipient malignancy as well as beginning destruction of organs from chronic infection can be avoided by such simple procedures. Then there is the case of a solitary fibroid which can be dealt with successfully with the knife or radium and X-rays in many cases, without removing the whole uterus. This is particularly advisable in women desirous of children. One should continually keep in mind the dangers of a neoplasm in pregnancy when delivery is attempted, as well as the ever present danger of benign growths becoming malignant at any time.

There has recently been described an unique method of successfully resecting non-patent fallopian tubes with re-establishment of the canal and subsequent pregnancies. The results are so encouraging in the cases reported that it is definitely worth trying.

Conservatism in dealing with the traumas incident to childbirth is frequently possible and advisable. We do not see as many vesico-vaginal fistulae as the older surgeons did. This is unquestionably due to the practice of better obstetrics. I believe it conservative surgery to repair severe damage done to the birth canel fairly early following delivery. Some obstetricians are repairing the lacerated cervix immediately following delivery. Most of them repair lacerations of the cervix if there is much bleeding. Practically all repair the perinaeum after a fashion, but most of us who have attempted repair of a lacerated perinaeum shortly after delivery know how difficult and unsatisfactory the procedure is. Very frequently the stitches do not hold and healing is prevented because of infection resulting in disabling lacerations. I believe it is conservative surgery to not allow severe lacerations with displacement of the uterus and ovaries go for a long period of time. And in this connection I wish to advocate early treatment of lacerations,—repair, amputation, cauterization, or conization by electro-coagulation.

Retrodisplacement of the uterus with broad ligament varicosities, ovarian prolapse with resultant chronic cystic degeneration and hypertrophic endometritis, seem to be a cause and effect complex which explains

many so-called menorrhagias which are so difficult to relieve. Many of these cases cannot be relieved by curettage or suspension or resection of ovaries, or sex hormones, and consequently come to hysterectomy, when if the pathology had been found and corrected early in its beginning, the organs could have been salvaged. Many so-called menopausal menorrhagias are in this group. I have frequently used X-ray with good results in such cases, especially those near the age of natural menopause.

Early correction of trauma to the birth canal also minimizes the danger of malignancy. How many of us have been guilty of telling a woman who has a lacerated, infected or eroded cervix and who is desirous of having more children, to wait until her child bearing period is over before having the repair work done? Is this sound advice? How often do we see such cervices become malignant and go to the stage of incurability before consultation is sought? Wouldn't it be much better to conservatively cauterize or repair such questionable cervices and run the risk of having to do it all over again than to allow such patients to run such a risk of developing malignancy.

Again, I believe the obstetrician and gynecologist are often confronted with decisions in pregnancies which require careful judgment as to the best type of delivery. Presumably difficult deliveries either because of small pelvic measurements, or disproportion between the baby and the birth canal, or a history of previous labors which have proved to be disastrous to child or mother, should swing the pendulum in favor of caesarian section, rather than difficult forceps delivery or version.

I say this because I know most surgeons are better surgeons than they are obstetricians, and I believe most obstetricians will get better results, when measured in terms of live babies and live mothers, without birth injuries to either child or mother, by doing a well planned, well timed and well carried out caesarian section, than by doing a mechanically difficult and often impossible delivery by the vaginal route. This is partly true because the section is so much more easily done, and doesn't require so much skill, but more particularly true because many vaginal deliveries with disproportion between the passenger and the passage are impossible on the face of it, without disaster to either passage or passenger. Frequently, too, the vaginal delivery is done as an emergency procedure and followed by serious complications. I maintain, therefore, that a planned and well timed and executed caesarian section in cases where indications are present, is a conservative and safe procedure, and in reality is preventive surgery.

With the advent of radium and deep X-ray therapy and electro-surgery the tendency has been for conservatism in the treatment of carcinoma of the cervix. There are fewer and fewer Wertheim type hysterectomies than formerly. Cases are coming to us earlier. The public is becoming increasingly better informed year by year through the press and public gatherings; and this permits more conservatism in carrying out procedures to cure many of the pathological conditions we see. This leads me to a

comment on technique which I have found practical and safe. I refer to the conservative supravaginal hysterectomy as opposed to pan-hysterectomy. In many cases where I formerly did a hysterectomy, removing all the cervix, I now do a supravaginal type, either coring out the cervix from above, or coning it out later with the actual cautery or high frequency current. This is a safer, easier operation and leaves a segment of uterus about the insertion of the utero-sacral ligaments which makes a much better pelvic floor, giving a support to the bladder and vagina when the round ligaments are sutured into it. If this procedure is carried out there will be practically no danger from malignancy arising in an old cervical stump left after supravaginal hysterectomy. Nor will there be any troublesome leucorrhea.

Within recent years, the improvement in methods of administering anesthesia have played an important part in making for conservatism in surgery. I refer to ethylene-oxygen, nitrous-oxide-avertin, or avertin-ether combinations, and particularly spinal anesthesia. Each of these combinations has its special advantages in selected cases. They have made it possible to operate with such freedom from preoperative nervous strain, and postoperative shock, nausea, and pain that patients do not fear operations as they once did. And spinal anesthesia, especially, has made it possible to do long plastic reconstructive operations vaginally, combined with extensive abdominal procedures with a safety and easy rapid convalescence which was unknown before its use. Personally I prefer spinocain to other preparations because of its lessening effect upon lowering blood pressure. Many surgeons have reported failures in getting sufficient anesthesia from its use. I had several failures when I first began using it, because I didn't appreciate the importance of expanding it, thoroughly mixing it with the spinal fluid. I have had no failures in the last 1,000 or more cases in which it has been used. Anyone who has used spinal anesthesia knows the ease with which it is possible to operate within an abdomen thoroughly relaxed and silent. Then too, there is definitely less shock following long operations under spinocain than under general anesthesia. This adds a conservatism to pelvic surgery in that it makes operating easier and less hazardous.

A plea is made for conservatism in operating upon organs of the female pelvis based upon an experience with newer methods of treatment in certain cases, or more conservative technique in others, and above all earlier correction of simple pathology before it becomes so damaging as to demand removal of sex organs.

President Manning: This paper ends the first General Session. This afternoon the different sections will meet as per your programs.

We will now adjourn for luncheon.

. . . The meeting thereupon adjourned at twelve forty-five o'clock. . .

SECOND GENERAL SESSION

Tuesday Evening Session, May 1, 1934

The Dinner Meeting convened at eight o'clock in the Main Dining Room, Dr. I. H. Manning, president, presiding.

. . . Singing of "America". . .

President Manning: Ladies and Gentlemen: The American people associate food and fellowship. If Mr. Coolidge's breakfasts had been a little more generous, something more than scrambled eggs, I think the national affairs would have gone better in his administration.

It is a delight to see the doctors of North Carolina and their wives resting from their professional and domestic responsibilities and assembled here tonight in sympathetic, helpful companionship. This is the first conjoint session of the Medical Society of the State of North Carolina and the Women's Auxiliary.

The Women's Auxiliary was organized with the approval of this Society and it should have the active support and sympathetic coöperation of the Society.

It is gratifying to realize that the wives of the doctors meet together at these meetings and discuss the affairs of their husbands. (Laughter) Now that they have broken away from some of the restraining traditions I am looking forward to the time hopefully and confidently when they will become the spokesmen of their husbands in civic affairs.

It gives me great pleasure to introduce at this time to this audience Mrs. J. W. Huston, who is the President of the Women's Auxiliary. Mrs. Huston! (Applause)

. . . The members arose and applauded. . .

Mrs. J. W. Huston: Mr. President, Your Excellency the Governor, and Members of the North Carolina Medical Society, and Guests: This is our eleventh birthday and we have been raised by the old fashioned maxim that children should be seen and not heard. We were delighted when you asked us here tonight just to be seen, but when you told us that we were to be heard we were simply overjoyed. I am particularly happy that it falls to my lot to be the spokesman for our organization, because I am rather a recent convert myself.

You know old Aunt Mandy says that the sister who has just come through oftentimes is just as enthusiastic, possibly a little bit more so, than the one who has "growed up" in the faith. (Laughter)

A few weeks ago I received a letter from Dr. McBrayer saying that your President requested that I make a ten-minute talk at this meeting. To impress upon me that little word ten he had taken his pen and put the three little words "not more than" right over it. (Laughter)

So, Mr. Secretary, get out your watch because this sister may be so happy at this testimony meeting of hers that she will forget time entirely. (Laughter and applause)

Some little time ago a young doctor's wife was calling on me and she said, "You know, Mrs. Huston, I believe the next hardest thing to being a doctor is being a doctor's wife."

I said, "Well yes, I agree with you but not entirely. There is many and many a time when being a doctor's wife is much harder than being a doctor." We prepare their dinners and they stand two or three hours, maybe aren't eaten at all, get our grips packed to make a nice trip only to unpack them and stay home. Sometimes we stay all night with our hostess when we were only invited for the evening, but friend husband goes off to the country with both keys in his pocket.

That is just a mere trifle to the doctor, where a life is concerned perhaps, but to the young doctor's wife it is oftentimes a near tragedy and we believe that being auxiliary members helps us to understand the doctor's problems better and makes us better helpmates.

There are forty-one states organized with fourteen thousand members at present and the reason of my conversion is this: I was present when our own organization was formed but I really couldn't exactly see the need of it but when the Southern Medical met with us in Asheville a few years ago I saw that there was something I was missing, that those women were getting a broader understanding of the doctor's problems, and the contacts made were deeper and stronger than when we just went to an occasional convention. Hence my conversion.

We were organized primarily for social reasons only. Then we took up the philanthropic work and then the educational. That is one of the most important parts and probably our Auxiliary in that way forms an informative link between the doctor and the public that he serves.

Study envelopes on communicable diseases and defects in children, the County Health Unit—there are five in number I believe that are distributed by our Health Committee gotten out by that committee and distributed through our Public Relations Committee to other lay organizations of women. Five thousand of those envelopes were distributed last year.

Arkansas alone used fifteen hundred of them and a thousand of them went to their State Federation of Women.

Just stop to think how strong this informative link is, perhaps one or two concrete examples will show. Mrs. Blake, our national president, who has just been with us, told me that in Detroit a short time ago, they sent out invitations to all the lay organizations in the city and had Doctor Bauer from the A. M. A. give them a talk on health education and such questions. Over five hundred women were present. She said he talked an hour and then he stopped and some woman in the back of the room said, "Well, Doctor, you haven't used all your cards." So he started in again and the women of the Detroit Auxiliary retired for a short business meeting. When they came back there were still over a hundred of those women from other organizations grouped around that man asking him one question

after another pertaining to health education. It looks as if perhaps it might be worth while.

In a certain county auxiliary on the west coast more for curiosity than anything else the women made a survey of the members who were officers or chairmen of committees in other women's organizations, and they found that through those organizations they were contacting nine thousand of the best citizens of the community. It looks like a rather strong informative link, doesn't it?

Our philanthropic work—the phases of it are legion and they are always under the supervision of the Advisory Committee, whether it is national, state or county; and right here I want to stop to thank Doctor Manning again for his keen interest in our work this year and our Advisory Committee, composed of Doctor Carl V. Reynolds of Asheville, Doctor J. R. McCracken of Waynesville, and Doctor D. T. Tayloe of Washington, who have been very helpful.

Doctor Reynolds has given most generously of his time and advice and has been very helpful to me, particularly because we are in the same place.

One of our most important philanthropic projects is our Student Loan Fund. There are over forty thousand dollars throughout the country being loaned to students. Primarily these were formed to loan to junior and senior medical students but now since it is rather hard for some of our doctors to send their children to college we are using it for sons and daughters of physicians. This year we put our own loan fund to work and the daughter of a physician has had a loan which helped her continue her education.

Another thing that we do is maintain a bed at Sanatorium. This year we have cared for a young physician just out of medical school and are helping him back to health.

In our own state we have two hundred thirty-eight members and if you care to know about what we are doing turn to the back of your own reports in the State Proceedings and there is a full report given of our work. You may find some parts of it interesting. We hope you will.

The A. M. A. sends out a journal once a month—a bulletin, I mean—and the last two pages of that bulletin are devoted to the activities of the Auxiliary. You might enjoy reading it and won't you please take it home so that your wife can read it?

Along with that I don't need to tell you anything about *Hygeia,* you all know it. Three years ago at Philadelphia the A. M. A. passed resolutions asking the Auxiliary to sponsor it. Since that time three thousand subscriptions have been placed in the hands of lay groups. You—a great many of you—take it. You know that it is the only authentic health magazine in the country. These questionable cults are sending out their propaganda far and wide. We would like to put a copy of it in every school, in every public library and in all public reading rooms. You can help us, even those of you who take it. You send nine dollars to the

A. M. A. for the two magazines. When you start next time to write your nine dollar check, won't you please make it seven? Then write the check for the other two to our treasurer or our new president, Mrs. Sidbury, and for every two of those subscriptions that are turned our way we can put one where it will be of service to the laity.

Boy scout leaders and girl reserve leaders, many of them, use it entirely in their health work.

As I said, our organization is eleven years old. Mrs. McCain of Sanatorium was our first president. What success we have attained is due more to her efforts than any other woman in the organization. We feel that we—in the language of our mountain neighbors—have come quite a "fur" piece and we hope as the years slip by to attain our goal.

The standard dictionary defines auxiliary as a help or an aid. We are yours to command. Use us as you see fit. (Applause)

President Manning: At this moment I wish to recognize Doctor Louise Ingersoll of Asheville, Chairman of the Carolina Branch of the Medical Women's National Association.

If Doctor Louise Ingersoll is in the room, will she please rise? (Applause)

I wish we had a table to stand you up on, Doctor Ingersoll, so that you could be seen by these people down in the other end of the hall. They say "come down and see them some time." (Laughter)

. . . Dr. Ingersoll had the women physicians in attendance rise. . . (Applause)

. . . She then gave the following information:

PROCEEDINGS OF THE SPRING MEETING OF THE CAROLINA BRANCH OF THE M. W. N. A., MAY, 1934

The Carolina Branch of the Medical Women's National Association held its annual meeting at a banquet in conjunction with the banquet of the North Carolina State Medical Association meeting on Tuesday, May 1st, at the Carolina Hotel, Pinehurst, N. C. Those present were: Dr. Louise Ingersoll, President; Dr. Eva Dodge, Vice-President; Dr. McNairy; Dr. Edythe Goodwin; Dr. Mary Martin Sloop; Dr. Sylvia Allen; and a prospective medical student, Miss Laura Ross. In the absence of the Secretary, Dr. Springa Weizenblatt, notes were taken by Dr. Allen. It was stated by Dr. Ingersoll that the only correction to the minutes of the previous meeting was, in her memory, some change in the section on dues, relieving Dr. Weizenblatt of transmitting the dues, because she had suffered some losses from bad checks which were not reimbursed. This change had to be left unsettled until Dr. Weizenblatt can be consulted.

Dr. Dodge moved that the same officers be re-elected for the coming year, except that Dr. Sylvia Allen be Vice-President in her place. Dr. Allen urged that Dr. Dodge reconsider her motion, and it was not carried. Dr. Allen nominated Dr. Eva Dodge as President and Dr. Springa Weizen-

blatt of Asheville as Vice-President; Dr. Ingersoll nominated Dr. Anna Gove of Greensboro as Secretary-Treasurer. Nominations were then closed, and the slate was unanimously accepted.

The session then became a social one, after which all members attended the speeches of the General Banquet of the State Convention.

Respectfully submitted,

DR. SPRINGA WEIZENBLATT,

Per S. A.

PRESIDENT MANNING: The economic problems of the practice of medicine have become of paramount importance. The medical profession has been so busy with finding out what to do with sick people and how to do it that they have paid very little attention to the evolution that has been going on in economic conditions. The perpetuation of the high ethical standards of the medical profession demands that the practicing physician shall be able to make an honest living, a living that is commensurate with his culture and with his dignity.

We are fortunate in having with us tonight Doctor Leland who is the Director of the Bureau of Medical Economics of the American Medical Association and who is associated with the Central Office in the city of Chicago.

I am glad to have Doctor Leland with us tonight. (Applause)

DR. R. G. LELAND: Mr. President, Honorable Sir, Madam President, Members of the Medical Society of the State of North Carolina, Ladies and Gentlemen: It is a pleasure, a privilege and an honor to be here among you tonight to discuss for a few moments some of the subjects of medical economics. I should like very much to hear and to see more of the ladies of North Carolina. Now that we have the Governor of North Carolina here I should like also to get something of the lowdown of that much talked of conversation between the Governor of North Carolina and the Governor of South Carolina. (Laughter and applause)

I am reminded of a story about a meeting some place in the middle west, some kind of a dedication at which Uncle Ezra was present. He watched one of the speakers at the speakers' table all through the meal and after the meeting he said to the chairman, "What was the matter with that man who sat just at your right? He didn't seem to enjoy his meal very much."

"Oh," was the reply, "he told me that he was always very nervous before he spoke and he never could enjoy his meal, therefore he decided not to eat much."

And Uncle Ezra said, "Well, he might just as well have et." (Laughter)

Ladies and Gentlemen, I have "et," but I hope that what I may say to you about medical economics may be merely the beginning of what you shall hope to find out for yourselves, because every physician must nowadays become well acquainted with this subject of medical economics if he is to talk and to write and to act intelligently on this subject.

There are many things in medical economics affecting the practice of medicine which at the present time are causing a certain amount of unrest, a certain amount of disturbance among the physicians throughout the country. These trends had their beginning long years ago, and one of the reasons for all the unrest lies in that kind of practice which we call contract practice.

These early origins of some of the new forms of medical practice lie in the fact that we have erroneously considered contract practice as all bad. Contract practice began in this country perhaps in seventeen hundred and ninety-five or ninety-seven. It followed the pioneering projects of mining engineering, railroad building, and lumbering, as they passed from the middle west to the Pacific coast.

In many of these projects it was absolutely necessary, it was legitimate and presumably ethical to furnish medical care under contract to all of those workmen who were far removed from adequate sources of medical care. Under those conditions let us say that contract practice was necessary, was ethical.

But under certain other conditions it is not ethical. It has been brought into the larger centers of population where medical facilities are adequate and it has become one of the commercial unfair competitions with the average practitioner who is trying to practice medicine ethically, independently. For this reason contract practice in my opinion is one of the fundamentals, one of the earliest, one of the most dangerous and destructive of all of the new forms of medical practice that are confronting the medical profession today.

We must not consider all forms of contract practice in the same category. They can not be considered en masse all bad but they must be considered on their own merits, whether or not the conditions under which contract practice is carried on must depend upon the study of each individual case separately.

The things that make contract practice the unethical, the dangerous, and the destructive forces in the practice of medicine today are: first, commercialism, because commercialism is one of the keynotes of contract practice—it depends upon solicitation of patients, solicitation of business. Associated with solicitation and commercialism is under-bidding and racketeering and unfair competition. In contract practice it is rarely if ever the case that professional competition is allowed to act as it does in private individual independent practice and therefore it is the physician who will do the job for the least money who gets the business and if he can not meet the competition of the other man next year, the other fellow gets his business.

When physicians, or medical societies refuse or ignore dealing with contract practice we find it an easy step for other practices to develop. We find unfortunately that in some sections of the country where contract practice is so disturbing that apparently the medical societies and indi-

vidual physicians do not choose to handle this question as it ought to be handled.

This may easily lead from contract practice to the practice of fee-splitting or commissions, and fee-splitting is a subject which has been before medical bodies for years and decades. Everyone here knows what the attitude of the honest, the conscientious practitioner, is toward fee-splitting. It leads to favoritism in clinic and hospital practice, favoritism because perhaps—let us say—of that insidious nefarious fee-splitting or commission method of practicing medicine.

It also leads to antiquated methods of care of the indigent sick. We believe that we have traced the care of the indigent in this country to the adoption early in our history of the Elizabethan Law. New York was the first state to adopt such laws and practically all of the states of the United States copied the New York law. There have been changes from time to time but essentially the care of the indigent sick today has departed very little from the old methods set forth in the Elizabethan Poor Law.

At a time when we are talking in terms of modernism in terms of evolution it certainly is a sad commentary that the medical profession that has made so much progress scientifically should be satisfied to leave the care of the indigent sick to such methods as we find today in practically all sections of the country.

We find, along with contract practice, by easy steps, political interference and preferment in workmen's compensation. This is no secret. The medical profession throughout the country now realizes what it ought to have done years ago, taking the proper attitude and steps and interest in the passage of workmen's compensation laws. Only recently has it been necessary for the medical profession of the state of New York to make strenuous efforts to change their workmen's compensation laws, and now they believe that they have a greatly improved law about to pass if it is not already passed.

It is possible for the medical profession where workmen's compensation laws are not satisfactory—and by satisfactory I mean where they do not mete out the intended benefits to the injured workman because workmen's compensation laws are essentially and primarily for the benefit of those who are injured in the process of employment—to take the necessary steps to make it satisfactory. It is time that everyone associated or connected with the administration of workmen's compensation benefits should realize the thing that has been slow to creep into the understanding of this subject, namely, that medical services are the real essential, the necessary services in workmen's compensation. Workmen's compensation is a big problem, is a big business in these United States. Annually about seventy-two millions of dollars are paid for medical services under workmen's compensation. There are about ninety million accidents annually, three million of which are of such serious nature that compensation is necessary. This is a big business.

All these tendencies have a definite effect upon the medical profession and the practice of medicine in the last few years, and one of the effects which they have had has been to awaken appreciation of the economic phases in the practice of medicine.

There was a time when to discuss medical economic subjects before a meeting of this kind or even in a county medical society meeting would have been suicidal for the man who proposed it. Nowadays we realize that medical economics is an essential feature of the practice of medicine that it is an essential part of the program of every county and state medical society. In the last few years it has been demonstrated that there is a necessity for careful study of medical economic subjects and problems. The time is very short since the report of the Committee on the Costs of Medical Care and you no doubt, many of you have read much of the report of that committee.

However, I desire to call your attention to the fact that some of the most important problems in the practice of medicine were not studied by that committee. For example: the Committee on the Costs of Medical Care did not study workmen's compensation, a phase of the practice of medicine which I have already told you involves at least seventy-two million dollors a year for medical care and which involves ninety millions of accidents annually. The Committee on the Costs of Medical Care did not study contract practice, except a few, four or five or six selected examples which were essentially to prove a point which they desired to make.

The Committee on the Costs of Medical Care did not study sickness insurance. It remained for the dentists to make a study of sickness insurance which was used by the Committee on the Costs of Medical Care.

That Committee did not study adequately group practice nor did it study adequately university student health service. There are other subjects which were not adequately covered by that committee.

I mention these facts to show you gentlemen that there still is considerable for the medical profession to do in the collection of data and facts, upon which to base an intelligent action in the economic phase of the practice of medicine.

In recent years there has been an increase in the economic pressure on physicians by greatly increased demands for free service and I need not tell you physicians who are here how much that increase in pressure, because of the demand for free service, has meant to you and to your confreres.

In the last few years there has been given an opportunity for the development of hastily conceived and artificially controlled plans for offering medical and hospital care to the public. In my office in Chicago I have a record of more than seven hundred schemes that have either been proposed or that are now operating in various sections of these United States, contract practice schemes of all kinds. It has been an easy matter for lay groups, individuals, for all sorts of persons to use medical service,

which is easily sold, which is a necessity, which is presumably to be used by each individual some time during his life—to use that kind of commodity as an easy selling point, a commodity which is to be sold by the lay person for a profit; and that profit is to be gained by the use of training, the experience and the brains and the brawn of the medical profession.

How long will the medical profession stand for lay control contributing to lay profits under those conditions? I hope not for long. (Applause)

During the last few years there has been stimulated renewed attempts on the part of some individuals, groups and foundations to regiment, mechanize and socialize medicine. The most recent of those has come from a New York foundation which has presented to the New York Academy of Medicine a scheme composed of some eighteen or twenty paragraphs which if adopted would completely mechanize, socialize the practice of medicine in that state, and if adopted there it would be an easy step from that state to all the states.

Is it possible that we as physicians will consent to the mechanization, to the socialization of medicine in advance of the socialization of other sections of society of the essential services and the other units of our social and industrial order?

For those of you who are looking for some sort of vacation perhaps financed by the money that you received from your CWA and FERA and other checks (laughter) I suggest that you buy as a guide "Red Medicine." I suggest that for several reasons.

In "Red Medicine" you can find between the covers of a book that thick (indicating) the amount of information that you can get by traveling nine thousand miles in about five weeks through a country in which you need never know a word of the language. "Red Medicine" is a report of a trip through Russia written by the Secretary of this same Foundation as a co-author with Sir Arthur Newsholme and it makes "Red Medicine" in Russia look very attractive. It is worth at least your brief perusal to show how very attractive these reports can be made, how very insidiously this propaganda is being spread to socialize medicine in these United States.

During the last few years there has been emphasized the worth of the principles of medical ethics and if I were to take any text for a sermon, I would select Section One of Chapter One of the Principles of Ethics of the American Medical Association which reads: "A profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration.

"The practice of medicine is a profession. In choosing this profession an individual assumes an obligation to conduct himself in accordance with its ideals."

My friends, it seems to me that there has been altogether too much of a hope or a voiced desire or a demand on the part of certain physicians that the principles of ethics which have stood the test of time be rewritten,

be restated, be added to, be changed—be something, they know not what except that they want the principles of ethics changed in such a way that whatever they wish to do can be made respectable.

That cannot be done. The principles of ethics which are written for the conduct of a single individual in the practice of medicine certainly ought to be good for the conduct of a group practicing medicine and certainly they ought to be equally good for a county medical society or a state medical society. (Applause)

During these years there has been an ever increasing call for a vigorous reaffirmation of the principle that quality of medical service is of primary importance to both the public and the medical profession in any method of administering medical care. Now as never before, my confreres, it is necessary that we as a medical profession give to the public a type of medical care that is superior, that is good. Quality is the thing which we must hold above commercialism, above fees, above everything else.

Finally, there has been a call for a vigorous stand by medicine to resist any attempts to destroy medicine as a profession.

All of this regimentation, this mechanization, this socialization of medicine would in the end make medicine a profession that for centuries, for three thousand years has been the outstanding profession of all professions, a mere business, a mere trade. It seems to me that we cannot possibly see medicine changed in that way. It must remain with the same high ideals, the same traditions, the same ethical considerations that have always marked medicine as a profession. To be sure, here and there there may be things that need to be changed. We, as a profession, should not be influenced to make changes merely for the sake of doing something. Change is never justified unless the new which is brought in is superior to that which it displaces, but we should not "be the last to lay the old aside nor yet the first by which the new is tried"; but wherever it is found necessary that changes should be made we should not hesitate for the good of the public to make those changes.

The history of contract practice, of health insurance abroad and many phases of workmen's compensation in this country which is the nearest approach to health insurance of anything we have, shows that inevitably when lay control, commercialism and political influence is permitted in the practice of medicine, the medical service deteriorates and the medical organization disintegrates. Therefore it seems to me that we must resist commercialism, lay control and political interference.

There is no universal solution to this problem. I know that you are interested to know what I might say as to the solution of all our perplexing problems in medical economics. I know that here and there it has been stated that the American Medical Association ought to come forward with some kind of a master plan, some kind of a solution, which could be put down on any community and solve the problems economically. I am sorry that that cannot be done. Conditions in North Carolina, in the State of

Washington, in California, and Texas and Michigan, are all different and a master plan will not work the country over.

Already there are plans which have been devised and are working in the State of Washington which is practically entirely organized into medical service bureaus. The State of Oregon has a law which permits the organization of hospital associations so-called. In California there is a great likelihood that health insurance may be enacted into law during the coming session of the next legislature. A study has been completed in Michigan and the Medical Economics Committee of that state society has suggested an insurance plan for that state, perhaps to be used in only a few communities, nevertheless a trend toward health insurance.

Unfortunately there is the other extreme of the socialization of medicine, presented by a foundation in New York. Elsewhere county medical societies have undertaken studies of various types. I submit to you that in my opinion the only way in which this large and perplexing problem with many sides—dangerous, some of them destructive—can be approached is by a careful judicious and very honest study by every society of physicians in the country.

Perhaps it need not be as ambitious in some places as it has been in others. Wisconsin made one study and Michigan, just across the lake, another study, and the one in Michigan cost about seven or eight times as much as the one in Wisconsin.

It seems to be that it is perfectly logical that we should expect the medical profession to bring to the study of medical economics something of the same energy, the same honesty, the same scientific attitude, that it has in the approach to the diagnosis of its patients, to the diganosis of disease. Therefore I suggest to you that in all of these problems which deal with medical economics you bring to those problems a mind which is free from bias, free from preconceptions; that you leave out of consideration personalities; that you deal with cold facts; that you do it honestly, as honestly as you diagnose disease among your patients; and if you do it that way—correct those things that need correction in your community without making sweeping changes, retaining those good features that have meant that medicine throughout the ages has gathered and has retained and has brought down to us those traditions which mean so much in the profession—and that you do all this for the sake of retaining for humanity the best form of medical practice.

Thank you. (Applause)

President Manning: On behalf of the Medical Society of the State of North Carolina I wish to thank Doctor Leland for coming to us and giving us this instructive talk on trends in medical practice in this country.

I have very great pleasure now in introducing first, the doctors of North Carolina and their wives to the Governor of North Carolina. I want to say to him that there is no group of more loyal citizens, that there is no group better trained for the work that they have undertaken to do, and

that there is no work more unselfishly and more efficiently done than the work that the medical profession of North Carolina is doing.

It is my privilege to offer to him the services of the doctors of North Carolina, either as citizens or as physicians.

If any of you have never been in the northeastern section of North Carolina, may I suggest that on some week-end you drive via Bertie County, Windsor in Bertie County, Edenton, Elizabeth City, Kitty Hawk to Manteo. You will pass over some of the most beautiful streams and forests to be found anywhere in this country. In this section are the records of the earliest historic events of the nation and from it come thrilling stories of the sea which will revive the boy in any man; stories of adventuresome Raleigh colonies, of the famous "Blackbeard," alias Edward Teach, the pirate, of the tragic disappearance of the brilliant and beautiful Theodosia Burr, of the pioneer builders of a nation and a state, and of Doctor Edward Warren, eminently a brilliant physician of international reputation.

From this favored section comes Governor Ehringhaus (applause) inheriting the mantle of Governor Iredell, the traditions and social charm of its people.

. . . The members arose and applauded. . .

Honorable J. C. B. Ehringhaus (Governor of North Carolina): Doctor Manning, Mrs. Huston, my good friends, ladies and gentlemen of the medical profession, its Auxiliary and friends: I confess that I have found so much of delight and entertainment in the time which I have been privileged to sit with you that I rise with a real regret and relinquish the attitude of a listener, a delighted participant in this delightful evening and assume the responsibility of one who comes to speak and presumably to contribute something to the entertainment.

I am quite certain that I cannot measure up to the high call of the moment. I will not, however, permit certain challenges which have been flaunted in my face to go unnoticed. (Laughter)

I recall quite vividly something which happened a good many years ago in a courthouse where I have spent most of my active life. I remember a certain lawyer who was more noted for his wit than for his learning; he was trying a law suit on a certain occasion. In the course of introduction of evidence by his adversary, he arose in great haste and launched into the face of the court a vehement objection. Well, nobody who had the slightest acquaintance with the laws of evidence knew what possible basis of objection could be urged. So the spectators, lawyers and laymen were not surprised when his adversary turned to him and said, "Well, I'd like to know on what grounds you object," and immediately there came back this response: "Yes, I reckon you would." (Laughter)

When I heard my good friend at the outset of his most learned and entertaining dissertation voice the desire to see more of North Carolina women (laughter) I felt like saying "Yes, I reckon you would." (Laughter and applause)

Then you know he gave me another challenge. He brought down to me for my consideration the suggestion of a new anecdote concerning something which tradition suggests a one-time governor of North Carolina said to a governor from South Carolina. (Laughter)

He asked me to shed some light upon the incident. I could tell you, if time permitted, what is suggested as the authentic story of that episode, and I will whisper it in his ear sometime. However, I will content myself for the moment by saying that if he has been in attendance upon this Convention for two days (laughter) and hasn't yet gotten the lowdown on what the Governor of North Carolina and all of its citizens say sometimes to the Governor of South Carolina or his constituency, then God knows he is helpless, hopeless. (Laughter and applause)

I confess that among other things which I heard with delight was the news that he gave us that the doctors or some prominent doctor in California was going to give to the nation some new and worthwhile health legislation. That intrigued me. I must say, however, in passing, that if such should prove to be true and his prophecy should assume the proportions of realization, so far as I am concerned, I cannot but regard it as another manifestation of the law of compensation, for I seem to think myself not alone in entertaining the idea that in view of what one of California's great engineers did to the country (laughter) some other member of some other profession ought to do something to make up for it. (Laughter and applause)

I assure him in the name of each and every one who is present tonight of a real enjoyment of the message which he brought, speaking in all seriousness. It was a thoughtful and a thought-provoking discussion which you were privileged to hear of a subject which I know is of real interest to you. Recalling the delightful, the informative and the wonderful account of stewardship which was given by his predecessor, the charming and gracious lady on the program, I know that your cup of enjoyment is running over and it is a blooming shame for a mere political dabbler or office-holder to break in on the evening. (Laughter)

You asked me to come here and so you must suffer the punishment of listening to me for a while. I promise you that I shall not detain you too long, I hope.

I think, particularly in view of what your splendid presiding officer has said to you and said to me by way of introduction—one who by the way carries in the charm and grace and force and strength of his intellect and personality all of the great inheritance that goes with the name which he bears (applause) I can presume to accept at its face value his suggestion: that you are interested citizens in the affairs of your state and that you would like to hear from the lips of one who is charged with its chief responsibility at this moment, something of an account of his stewardship.

. . . The Governor then discussed in a most informative way and with his usual eloquence the condition of our state financially when he

went into office and followed the continuous improvements up to the present time, on completion of which the audience arose and applauded. . .

President Manning: Ladies and Gentlemen: I wish to thank on behalf of the Medical Society of the State of North Carolina the Governor for this most helpful and instructive address.

The General Session of the Medical Society now stands adjourned.

. . . The Session adjourned at nine-thirty o'clock, following which the President's Reception and the annual Medical Society Ball took place in the ball room. . .

THIRD GENERAL SESSION

Wednesday Morning Session, May 2, 1934

The meeting convened at nine-twenty o'clock, Dr. Verne S. Caviness, of Raleigh, presiding.

Chairman Caviness: The Third General Session will come to order.

The first paper on the program this morning is "Treatment of Chronic Arthritis," by Dr. David T. Smith, of Durham.

TREATMENT OF CHRONIC ARTHRITIS

David T. Smith, M.D.
Duke Hospital, Durham, North Carolina

Excellent discussions of the etiology, diagnosis and treatment of chronic arthritis have been presented to the medical societies of North Carolina by Dr. Rainey ( ) of Fayetteville and Drs. Allen ( ), Hart ( ), White ( ), and Gaul ( ) of Charlotte. These investigators all agree that arthritis is basically a systemic disease with local manifestations in the joints. Although arthritis is a very chronic disease, similar to tuberculosis in its tendency to relapse and progress, with early diagnosis and proper treatment many cases can be cured; many more improved; and nearly all arrested.

We should realize that chronic arthritis is not one disease but a group of diseases and no one basic factor is responsible, but a combination of several factors which vary in importance in different individuals. Among these factors must be listed (1) a familial constitutional tendency to the development of the disease; (2) subnormal physical development; (3) disturbance in the endocrine glands especially the thyroid, and perhaps the ovarian and testicular secretions; (4) over-activity of the sympathetic nervous system causing a diminished blood supply to the joints which in turn results in inadequate nourishment to the tissues of the joint and the accumulation of toxic products; (5) abnormal metabolism of carbohydrates or purines; (6) chronic, long continued, partial deficiencies in vitamins; (7) exposure and trauma to the joints; (8) infections.

After eliminating the arthritis of rheumatic fever and specific arthritis (tuberculous, syphilitis, gonococcal, staphylococcal, etc.) we are left with two more or less distinct types of chronic arthritis, the atrophic and the

hypertrophic. The essential points in differentiating these two types is presented in Table 1 which was copied from the report of the American Committee for the Control of Rheumatism.

Chronic arthritis is one of the most common of diseases. Minot ( ) says that twice as many people in the State of Massachusetts suffer from arthritis as from heart disease. For the year of 1928 Henderson ( ) at the Mayo Clinic reported either a primary or secondary diagnosis of arthritis in 5,000 cases or one case in every fourteen patients. Among 36,000 patients seen in the out-patient department or in the Duke Hospital a diagnosis of arthritis was made in 1,263 or one in every thirty patients (Tables II and III). The disease occurs with such great frequency, in such varying degrees of severity, and so often in patients with other organic diseases, that the problem is and must remain primarily one for the general practitioner. It is for him to decide when the patient needs complicated studies in a clinic or hospital and when the advice of an orthopedic surgeon is required.

A review of the literature reveals many different forms of treatment used by the various specialists in arthritis and each claiming excellent results with his particular method. In spite of this apparent confusion, a close study of these methods will reveal that all are related to one or more of the basic factors listed above as the causes of arthritis. Even the basic methods of the conscious or the unconscious quack frequently produce remarkable results because he succeeds in arousing the hope and faith of the patient which in turn stimulates the appetite, the digestion, the assimilation and excretion and this improves first the general condition of the patient and finally the joints.

Theoretically treatment may be directed either toward the removal of the basic causes or toward the relief of the symptoms resulting from the arthritis although in practice it is generally necessary to carry out both types of treatment concurrently.

The first factor, "constitutional tendency to the development of the disease" is beyond our control.

The second factor, "subnormal physical development," is of little importance in the hypertrophic type, but of the greatest importance in the atrophic form. Indeed, it may be said that any method of treatment is good if it succeeds in rebuilding and rejuvenating the tissues of the patient and the patient as a whole.

Deficiencies in the endocrine, especially the thyroid, is of slight importance in the atrophic type, but of considerable importance in the hypertrophic. The hypertrophic form frequently appears at about the time of the menopause in women and at about the same age in men. The decreased thyroid function causes a gain in weight and a slowing of circulation, resulting in improper nourishment to the joints. It has been shown that decreasing the blood supply to the patella of dogs results in bony changes characteristic of hypertrophic arthritis. The tendency of patients with hypertrophic arthritis to have a lowered metabolic rate was noted by

Swain and Spear ( ) in 1927. The importance of their observation was emphasized by Rainey in 1930 and by White in 1931. Hall ( ) says the B.M.R. was —10 or below in 50% and —15 or below in 34% of 150 cases of hypertrophic arthritis. The basal metabolic rate was determined in 31 of our cases of hypertrophic arthritis. We found it to be +10 or above in 3 cases and —10 or below in 14 cases or approximately 50% (Table IV). At times thyroid may be of value even when the B.M.R. is normal if administered carefully in small doses.

Overactivity of the sympathetic nervous system is suggested by the emotional instability of the patient and by the cold, clammy extremities. Dr. A. W. Adson of the Mayo Clinic operated upon a hopeless case of chronic atrophic arthritis of the deformans type and removed the second, third, and fourth lumbar sympathetic ganglia on both sides ( ). Following the operation the pain, pallor and sweating disappeared; her tissues returned to normal and she could walk without discomfort.

Martin ( ) has shown that a certain number of patients with hypertrophic arthritis, 17 out of 43 cases, have difficulties with their purine metabolism. There are the gouty patients. He reports excellent results on low purine diets.

Osgood ( ), Pemberton ( ), White ( ), and others have shown that a large percentage of patients with either atrophic or hypertrophic arthritis have difficulties with the digestion of carbohydrates. Some of Martin's patients had difficulty with purines (40%), some with carbohydrates (50%) and some with both (30%). There is never any advantage in a high carbohydrate diet except when used as a cheap source of calories for severe physical exercise. Therefore a diet low in carbohydrates may be used as a corner stone for the dietary treatment of both atrophic and hypertrophic arthritis. If there is faulty purine metabolism the diet may be low in carbohydrates and low in purines; for the obese patient the diet should be low in carbohydrates and low in calories, while the malnourished patient with atrophic arthritis may require a low carbohydrate but high calorie diet.

Chronic, partial deficiencies in vitamins must be recognized as one of the causes of focal infections ( ) and probably one of the many factors responsible for chronic arthritis. Rats on chronic vitamin B_1 deficiency have developed a faulty metabolism in respect to starch and a dilated colon analogous to that seen not frequently in chronic arthritis. Fletcher ( ) ( ) and Hadon ( ) have reported that the addition of yeast to the diet of patients with chronic arthritis resulted in the restoration of the dilated colon to normal and coincidentally an arrest or cure of the arthritis. An adequate supply of vitamins A and C are necessary for the proper nourishment of the intestinal mucosae ( ) and if they are lacking in the diet, the intestinal walls may become foci of infection and permeable to bacteria and their soluble products. Vitamin D is required for the proper absorption and assimilation of calcium. It acts either directly on absorption or indirectly through the para-thyroid glands.

Calcium is the natural sedative for smooth muscle and for the nervous system. The basic diet described in the preceding paragraph should be supplemented by orange juice, tomato juice, or fresh green vegetables for vitamin C; yeast, wheat germ (Vegex, Benax, etc.) for vitamin B; and butter, cod liver oil or haliver oil for vitamins A and D. If the patient refuses milk, extra calcium should be supplied as calcium lactate or calcium gluconate.

Exposure and trauma to the joints should be avoided because they interfere with the local metabolic processes and lower the resistance to infection.

Infection plays little if any part in the development of hypertrophic arthritis; there are no streptococci or agglutinins for streptococci in their blood and the sedimentation rate of their red blood cells is within normal limits ( ). Opinion is divided as to the role infection plays in atrophic arthritis. I believe that infection is always present in the active stage of the disease as shown by the fever, elevated pulse rate, local inflamed joints, positive blood cultures for streptococci, positive agglutination reactions with typical strains from the blood of patients with arthritis and positive skin tests with vaccines made from these strains. Streptococci have been grown from the glands which drain the infected joints by Poston ( ) and by Forbus, Shands and Poston ( ), Dawson, Olmstead and Boots ( ); and from the blood of the patients by Rosenow ( ), Cecil et al ( ); Dawson et al ( ), Burbank et al ( ), Small ( ), Gray ( ), and Ashworth ( ). Finally typical atrophic arthritis has been reproduced in rabbits by the intravenous injections of pure cultures of streptococci ( ). The clinical course of the disease in rabbits, the roentgenographic findings, the gross and microscopic tissues were apparently identical with the changes found in man.

There is certainly an allergic condition present in some of these cases as shown by the skin tests and by the local inflammation in the joints and the generalized reaction following the injection of as small a dose as 100,000 streptococci.

With these facts in mind it is easy to see how the complete removal of the focus of infection at the very beginning of the disease may result in a cure. It is also evident why the removal of foci may be actually harmful during the height of the disease when the organisms are being carried through the blood stream, when secondary foci have been established and while the body tissues are highly allergic. The futility and danger of promiscuous removal of teeth, tonsils has been emphasized by Pemberton ( ), Rainey ( ), Allen ( ), and White ( ).

Non-specific protein shock with typhoid vaccine occasionally produces a dramatic cure in atrophic arthritis. Part of this effect may be due to the improved circulation to the joint and part to non-specific shock desensitization. Weatherby and Clawson ( ) give intravenously massive doses of streptococci, 100,000,000 to 800,000,000 and frequently obtain severe reactions, but claim 80% clinical improvement. They maintain

their streptococcus vaccine gives better results than typhoid vaccine. Cecil ( ) attempts desensitization by very small intravenous doses of streptococcus vaccine and Small ( ) by minute subcutaneous doses of the soluble streptococcal polysaccharides. I use small desensitizing doses of streptococcus vaccines in cases which have not improved with the low carbohydrate, high vitamin diets if the patient has a definitely positive skin test. The fact that many patients recover from atrophic arthritis with dietary and physiotherapy treatment without the use of vaccines is not proof that an infection was not present. The standard method of curing tuberculosis is to build up the resistance of the patient against the germ rather than attempting to kill the bacillus.

Good elimination is essential. It may be accomplished by the usual orthodox methods or by colonic irrigations. Snyder ( ) of New York supplements his dietary treatment with colonic irrigation and has treated more than 1,000 patients by this method. I have seen some immediate temporary improvements following colonic irrigation. Shands has noted that those who are going to be improved begin to show some relief after the second or third irrigation ( ).

The striking results which sometimes follow the intravenous injection of O-iodiodoxybenoic acid which was introduced by Young and Youmans ( ) and tried out in this state by Rainey ( ) may depend partly upon non-specific shock desensitization and partly upon its analgestic effect. If the pain and stiffness in the joints can be relieved, the patient becomes hopeful, his appetite, digestion and elimination improves and he frequently goes on to an arrest or even cure of the disease.

Local physiotherapeutic measures should be used routinely. Gentle massage, passive motion, baking and diathermy may give considerable relief. The most dramatic results I have seen from any form of therapy were those obtained in 15 cases of arthritis by Dr. Louis Spector and Dr. Angus McBryde. They used the high fever method introduced by Dr. Warren of Rochester, N. Y. Frequently children and adults who were bedridden for months were practically free from pain and able to walk about the ward after two of these treatments. The apparatus is neither very complicated or expensive. The results in the treatment of arthritis with this method will be reported later in detail by Dr. Spector and Dr. McBryde.

Consultations with the orthopedic surgeon is indicated in the more severe cases of arthritis to prevent deformity in the early stages and to correct deformities by operations in the old arrested cases.

The following cases have been selected to illustrate some of the problems encountered in the moderately severe cases of atrophic arthritis.

L. S., Hist. No. 1406. A married woman, age 45, entered the hospital April 7, 1931, with severe bronchial asthma and was found to be sensitive to certain bacteria in her sputum. With high calcium, high vitamins, vaccine treatment, the asthma practically disappeared in three months. While in the hospital arthritis of the fingers and ankles was discovered.

In spite of the improvement in the asthma, the high vitamin diet, and the bacterial vaccine which was non-specific protein therapy as far as the arthritis was concerned, the arthritis continued to grow worse. The tonsils were removed, but there was no improvement in the following three months. After six months on this treatment, desensitizing doses of Cecil's vaccine were given twice a week. There was no limitation of carbohydrates, but the high vitamins were continued.

Within six weeks after the vaccine treatment was started, there was definite improvement in the joints. The injections were continued for six months and then stopped. The high vitamin treatment has been continued, but no vaccine given for the past eighteen months. The patient considers herself well of both asthma and arthritis.

G. N., Hist. No. 18,149. A young married woman of 36 years came to the hospital August 8, 1932, complaining of pain and swelling of the ankles and knees for the past four years. The onset was incidious, steadily progressive, and has caused acute suffering for the past 18 months. Her appetite was poor, digestion impaired, and she alternated between constipation and diarrhea. Her emotions were unstable, she cried easily and had a rather hopeless outlook on life. Physically she was thin, pale and had a poor posture. Some of her teeth were missing, the gums were reddened and retracted. The heart was mediastinally enlarged and there was a loud pre-systolic murmur. There was enlargement of glands in the axillae and groin. The ankles, knees, elbows, wrists, and fingers showed varying degrees of pain, redness, swelling and limitation of motion. There were some small hemorrhoid tags, but no infection of the ears, nose or throat. X-rays of the chest were normal. X-rays of the teeth showed marked alveolar absorption. Temperature 37. Pulse 100. Respirations 20. The urine was essentially normal. The W.B.C.'s were 11,300. Hgb. 76%. Blood Wassermann negative. Basal metabolism +8. She gave a marked passive reaction to skin test with Cecil's streptococci vaccine. The teeth and the intestinal tract were considered the most probable foci of infection.

She was given Pemberton's low carbohydrate diet, but it was changed from a low calorie to a high calorie diet by the addition of more meat and three glasses of milk each day. A large supply of vitamins was added by the addition of a tablespoonful of cod liver oil and a glass of tomato juice after each meal. Twice a week she was given a desensitizing dose of Cecil's vaccine. Her walking was limited, but she was not put to bed.

The patient's appetite improved. She gained some weight and the joints became less painful during the first three months of treatment. Then some unfortunate family complications developed. She lost her appetite, had difficulty with her digestion and elimination and lost weight. Soon there was a recurrence of pain, swelling and disability in the joints. All the ground which had been gained in three months was lost in two weeks.

After the family difficulties were solved, she began to improve again. The diet, vitamins and vaccine treatment have been continued to the

present time. I believe the patient has improved 75% and that the chief element in the improvement was psychic. With a more hopeful outlook she began to eat better, digest her food and gradually rebuild her body tissues. The low carbohydrate and high vitamin diet was next in importance. The vaccine treatment in this case was probably largely psychic, but served a useful purpose in bringing the patient back to my office so I could keep her encouraged.

D. H., Hist. No. 3,270, a white male of 24 years, was admitted to the hospital February 2, 1931, with the complaint of rheumatism for 8 years. The process started in the ankles and later spread to the knees, hips, and shoulders and back. Except for the pharynx and joints the physical examination was negative. Urine was normal. W.B.C. 6,800. Hgb. 85%. Blood Wassermann negative. The tonsils and adenoids were infected and were removed March 18, 1931, and the patient discharged March 21, 1931.

He returned to the hospital again 7 months later on November 14, 1931, and reported that the elbows, shoulders and knees had improved, but the hips were worse. The right thigh was held in semi-flexion due to pain in the hip joint. No foci could be found in any other part of the body. He had very foul stools which at times contained blood, but no amoeba or ova. Cultures showed the presence of large numbers of hemolytic streptococci. High colonic irrigations were tried. After two or three irrigations there was marked subjective improvement; he was able to extend his thigh and walk about the ward. He gave a positive skin test with a vaccine prepared from his stools, but no vaccine treatment was administered. He was discharged Dec. 12, 1931. He continued to improve until Jan. 7, 1932, when he developed "kidney trouble" and there was a return of the symptoms in the hips and shoulders. Blood and mucous was found in the stools and colonic irrigations were again started with some relief, but not as dramatic as on the first occasion. His condition was improved when he was discharged March 15, 1932.

K. W., Hist. No. 1,919. A single, white woman of 42 years entered the hospital March 15, 1931, complaining of chronic arthritis of thirteen years duration. The disease began in 1918 with pain in the back. In 1925 arthritis developed in the jaw. The tonsils were removed without relief. In 1927 while on a trip to Europe she eliminated all fruits and vegetables from her diet because of fear of infection with typhoid or dysentery. After a few months on this restricted diet she developed a diarrhea and severe arthritis in the knees. After returning to this country, the diarrhea continued and she was given a series of injections of emetin because amoebic infection was suspected. The diarrhea persisted, but became less severe. However, the joint involvement progressed until most of the joints were involved. At the time of admission her mental outlook was poor; she considered herself a hopeless case and preferred to stay in bed.

Infection was found in the intestinal tract, in the urethra, in the cervix, and in the fallopian tubes. She was malnourished and anemic. Practically all the joints were hot, swollen and tender. Because gonococcal infection

was suspected she was given a series of injections with amidodoxyl benzoate with some slight improvement. She was given first a high protein diet and Pemberton's low calorie, low carbohydrate diet, iron ammonium citrate for her anemia and sent home to take a series of injections of foreign protein in the form of aolan.

In July, 1931, she was given a series of colonic irrigations without any definite improvement.

Dr. Shands' note made March 4, 1932, one year after she was first seen in the hospital, indicated that there was very little if any improvement in the joints although the anemia had disappeared. Dr. Shands suggested that I try Cecil's vaccine. The patient showed an immediate marked allergic wheal at the site of injection with the vaccine which was followed twenty-four hours later by a red, tubercular-like reaction. The Pemberton's low carbohydrate diet was continued, but supplemented by three glasses of buttermilk and a dessert spoonful of 10D cod liver oil and a glass of tomato juice or orange juice after each meal. Small desensitizing doses of a formalinized culture of Cecil's streptococcus was administered twice each week. If the dose was increased rapidly, it resulted in violent local reaction in the joints twelve to twenty-four hours after the injection. Even after a year of treatment, she could not tolerate a 0.5 cc. dose of a 10,000,000 per cc. dilution of this vaccine. During the second year of treatment weekly doses of heat killed streptococci 1,000,000 per cc. were administered.

In spite of constant encouragement and a show of optimism on my part, there was no definite improvement in the joints during the first six months of this low carbohydrate, high vitamin, vaccine treatment. Within three months, however, there was marked improvement in the appetite, digestion and general appearance of the patient. The stools became more normal and the patient felt better in general. Following this general improvement there was a gradual improvement in the joints. There was more rapid improvement in the summer than in the winter.

The low carbohydrate, high vitamin diet has been continued, but no vaccine has been given for the past year.

The patient has been working in an office earning her own living for the past two years and is delighted with the results of her improvement. Although no local treatment was ever given for the foci of infection, they no longer disturb the patient.

I believe that she has made a 75% improvement and this was accomplished by building up the resistance of the patient. The general encouragement and diet was of more value than the vaccine, although something was probably accomplished by the desensitizing doses of vaccine.

M. H., Hist. No. 11,372, a white married woman of 31 years was referred to the hospital February 13, 1932, by Dr. S. W. Hurdle with the complaint of recurring pain and swelling of the knees for 3 years. The attacks which were mild at first and came on at irregular intervals, became

more severe and assumed a periodicity of ten to twelve days following an acute tonsillitis in October, 1931. As soon as the acute attack subsided she had her tonsils removed, but no improvement resulted.

The general physical examination was negative except for the pain, redness, and hydrothrosis of the knee joints. The urine was normal. W.B.C. 4,200. R.B.C. 4,320,000. Hgb. 50%. Blood cultures were negative. Complement fixation of blood and joint fluid for gonococci was negative. Cultures from the joints were negative for gonococcus, brucella, streptococcus and all other organisms. No foci of infection could be found although careful study was made of the teeth, sinuses, pelvis, kidneys, etc. The patient was somewhat underweight and definitely anemic. She was returned to her family physician with suggestion that he try a high calorie diet, liver extract, iron and local and general treatment with ultraviolet light.

Her appetite improved and her general condition improved. She gained five pounds in weight and recovered some of her lost hemoglobin, but the joints continued as before to recur every 10 to 12 days. She was readmitted to the hospital May 16, 1932, three months after the first admission. At the time of readmission her W.B.C. was 7,760, R.B.C. 4,600,000 and Hgb. 92%. She gave a positive skin test to Cecil's streptococci vaccine. In the anaerobic cultures of the fluid removed from the knee joint after 15 days incubation there appeared a growth of streptococcus viridans. She was advised to continue the high calorie diet, liver extract, iron, ultraviolet radiation. The diet was to be supplemented by a tablespoonful of cod liver oil and a whole glass of tomato juice three times a day after meals. Cecil's vaccine in desensitizing doses was advised. The treatment began with 0.1 cc. of a dilution which contained 1,000,000 organism in 1 cc. As soon as a autogenous vaccine could be prepared from her own streptococci, this was substituted for the Cecil's vaccine.

There was a definite, but irregular improvement in the joints from this time as shown by a letter from her family physician, July 12, 1932.

Re-examination September 14, 1932, showed the left knee essentially normal, but the right continues to swell at 12 day intervals. By November 16, 1932, there was practically no swelling.

The patient was seen last in January, 1934, nearly two years after the beginning of treatment. She had very little difficulty with her knee and considered herself 90% improved.

SUMMARY

Some of the many factors to be considered in the diagnosis and treatment of chronic arthritis have been listed and discussed in this paper. The importance of the psychic element and the absolute necessity of rebuilding the resistance of the patient has been emphasized. Any practitioner of medicine can learn to treat arthritis successfully provided he has a cheerful disposition, unlimited patience and some knowledge of the basic factors involved in the disease.

Table I—CHRONIC ARTHRITIS

	Atrophic Arthritis	*Hypertrophic Arthritis*
Common Synonymous terms employed in other Classifications	Rheumatoid Arthritis. Proliferative or Ankylosing Arthritis. Arthritis Deformans. Poker Back Spondylitis Rhizomélique Strumpel-Marie Type. Still's Disease, (Children).	Osteoarthritis. Degenerative or Non-Ankylosing Arthritis. Osteoarthritis of the Spine, Von-Bechterew's Syndrome. Malum Coxae Senilis.
Age Incidence	From infancy to middle life.	From middle life to death.
Body Type	Somewhat more common in slender ptotic women and men.	Somewhat more common in stocky well-nourished men and women.
Onset	Acute to insidious.	Subacute to ignorance of presence.
Symptoms and Signs	General health usually not robust, fatigued easily. Pain and disability often pronounced. Joint swellings and muscle atrophy to be observed.	General health usually less disturbed. Pain and disability often slight. Joint swellings and muscle atrophy less noticeable.
Roentgenological Appearances — Early	No apparent cartilage or bone changes. General increased density of soft parts. Diminished density of bone Atrophy—No "Lipping."	Slight "lipping" of articular margins. No general increased density of soft parts. Less diminished density of bone (unless long non-use). Articular space irregular, hyperostoses.
Roentgenological Appearances — Late	Narrowed articular space subluxations—ankylosis.	No ankylosis.
Morbid Histology — Early	Early proliferation of synovial membrane—"pannus." Usually small round cell infiltration. Epithelioid Nests.	Early fibrillation of articular cartilage. No general proliferation of synovial membrane. No small round cell infiltration. Chondro-osseous hypertrophy of articular margins.
Morbid Histology — Late	Late destructive and atrophic processes in cartilage and bone. Fibrous, true, bone ankylosis.	Late Eburnation, Deformation, and hypertrophy of articular bone enns. Cyst-like cavities in cancellous bone near articular surface. Joint mice common—No true bone ankylosis.

TABLE II—ARTHRITIS

Type Disease	*Number Cases*
Arthritis, rheumatic	41
Arthritis, acute infectious	162
Arthritis, atrophic	630
Arthritis, deformans	17
Arthritis, hypertrophic	413
Total	1263

Total admissions to Dispensary and Hospital, 36,000.

Arthritis 3.23% Ratio 1:30

TABLE III—ARTHRITIS

	White		*Colored*	
	Male	*Female*	*Male*	*Female*
Atrophic	398	272	38	39
Hypertrophic	209	162	19	23

TABLE IV—HYPERTROPHIC ARTHRITIS

BASAL METABOLISM IN 31 CASES

High 0, + 2, + 6, + 7, + 9, +13, +14, +29

Low − 4, − 4, − 5, − 6, − 8, − 8, − 9, −10
−10, −13, −13, −13, −14, −14,
−15, −17, −18, −19, −23, −24, −29

+10 or above— 3 cases
−10 or below—14 cases

. . . At this Point President Manning assumed the Chair. . .

PRESIDENT MANNING: First, I want to apologize most profusely for being late this morning. I have been awake ever since half-past five. It wasn't that I slept late, but the breakfast kept me. As a matter of fact, I hadn't looked at the program and didn't notice that this morning's session was called for nine o'clock instead of nine-thirty as it was yesterday. (Moral: Read your program.)

Sometimes I think that one additional officer should be supplied to the Medical Society and that is a court-crier who will go out in the lobbies of the hotel and announce that the meetings are in session. And I would add to his functions that of doorkeeper, so that we can keep the door closed and prevent the conversations of those who are out in the lobby from coming into the meetings.

I want you to observe particularly that I am wearing the medal this morning. (Applause) I take great pride in this and when I am no longer able to wear it I will hand it down to my embryo doctor and he will guard it as sacredly, I guarantee, as I shall.

The next paper on the program is, "Heliotherapy, Is It Practicable?" by Dr. Lewis W. Elias, of Asheville. This is from the Section on Pediatrics. (Applause)

HELIOTHERAPY, IS IT PRACTICAL?

By Dr. L. W. Elias, Asheville

Holt states that heliotherapy is probably the most valuable agent we possess in the treatment of tuberculosis, being superior to the quartz lamp and other types of artificial actinotherapy. Of course the therapeutic effect of sunlight on rickets, tetany, and other diseases is well known. Also most physicians nowadays would agree with Holt when he states that sunlight is essential for all infants, and that the practice of giving sunbaths should by all means be encouraged. That is, they agree in theory, but when the need for a practical application arises there seems to be confusion regarding many seemingly difficult problems in the everyday working of this valuable measure. It is to meet these difficulties that this paper is presented, with the hope that it may offer some suggestions that will be helpful to both doctor and parents.

Rather than give dry detailed instruction it seemed wise to offer a case history, which admirably covers much of the ground. A further merit in the methods here reported is that they are thoroughly practical—they worked. The account is given almost entirely in the mother's words, slight editing being necessary in order to come within the limit of time allotted for this paper. The history follows:

My two children are girls, aged nine and seven years respectively. They have had daily sunbaths with few exceptions since infancy. For their years they are normal children in height and weight. They radiate health and happiness, and I feel that no matter what may come in the future they will be better able to cope with it on account of the fine foundation of good health.

I am often asked how I give a sunbath. Of course now it is no longer a problem. They live in sun pants out doors the year round, but during the first baby years it was my problem to see that the sunbath was given regularly every day, both winter and summer, snow or sleet, sun or cloud. I confess it took most of my time, but that was "my job," and I have been amply repaid for every hour spent in the sun with them. I had rather spend hours in the sun than to nurse a sick child during the dark hours of night and the equally dark hours of the day if a little one is suffering.

When my children were babies their schedule was planned around their sunbath time.

The younger was born on August 16th, and on September 27th, the day she was six weeks' old, I started her sun baths. My reason for not beginning earlier was because I was not physically able, and giving the sun bath was something I was unwilling to trust to another. Fortunately I had an uncovered porch, protected on two sides, which proved an ideal place to give a sun bath. The first day I carried the baby out I sat down with her in my lap, uncovered her hands, feet, and face, and kept her in the sun for three minutes. The next day at the same hour and in the same place I sat down with her in my lap and exposed a little more of her arms and

legs, and increased the time to five minutes. From then on a little more of her was uncovered each day, and the time was increased daily until her entire body was exposed and she remained out for one hour. The weather was so lovely at this time and the baby's response to the sun was so splendid that in five days all her clothes were removed for the sun bath but I continued the gradual increase of the time from day to day. It was on the 20th of October that she remained out for one hour. That was her graduation day. From then on she was kept out for an hour or longer. She was well and happy, and since October 16th had been sleeping through the night from her ten o'clock feeding to her six A.M. feeding without waking. I am able to give these exact dates because I kept a diary and I am referring to it. Neither of the children has ever missed a sun bath on account of weather conditions.

I found a large clothes basket fine for the babies when giving sun baths. I put a pillow in the basket, spread a pad over this, laid the baby down, and carried her outdoors. As they grew older I put a pad on the floor of the baby pen and laid them on it. They would crawl and roll about in the pen, pulling themselves up by the sides, and amuse themselves during the time of the sun bath.

If there was a disagreeable wind blowing I would hang a heavy blanket across the backs of chairs, making a shield, but unless it was really a strong wind I paid no attention to it, for I noticed it had no ill effects on the babies. They were never chilled when undressed and taken from a warm room to the cold outside air. I watched carefully for gooseflesh or any evidence of being chilled, but there was none. They did not seem to notice the change of temperature at all.

In the winter I found the best hour for the sun bath was from 11:30 A.M. to 12:30 P.M. Often they were out for a longer time. On cloudy days they were taken out as usual, as I was told that even under these conditions they obtained much benefit. I recall one bitterly cold day when the older girl, then just a baby, was sick with a cold. Her temperature was around 103. I telephoned the doctor and asked if I must give her a sun bath. He said, "By all means, and keep her in the fresh air all the time." With reluctant fingers I undressed her and carried her out on the porch. I kept her out for an hour, and on returning to the house I found her temperature greatly reduced. I then put her to bed on a sleeping porch with seven windows wide open. She was soon sleeping quietly, and the next day she was entirely well.

In the summer I found I had to be more careful about the hour of the sun bath than in the winter, on account of the intense heat at noon, which troubled the children more than the cold of winter. I decided that the best hour on hot days was from 9:30 A.M. to 10:30 A.M.

I am often asked "Do they never have colds?" Yes, they do have colds occasionally, but the cold seldom lasts more than twenty-four or forty-eight hours. Sunshine, plenty of water, quantities of orange juice, and they are well again.

While they were tiny infants I stayed with them during the sun baths, rolling them from side to side, first on the back and then on the stomach, so that every part of the body was exposed to the sun. I used no protection for the eyes, they took care of that. If the sun was too bright in their eyes they would close them or turn their heads away. They both have good eyes. At a school examination given by an eye specialist the older one's eyes were rated practically perfect.

They also have excellent teeth. At a recent examination our dentist said that he had scarcely ever seen such marvelous teeth.

I am also often asked how I dress them. That too was a problem for me at first. I had my preconceived notions about summer and winter clothing, but I had to change these ideas. I dress them the same the year round. They wear dresses with either very short sleeves or none at all, and little pants. If the dress is of transparent thinness a petticoat is added. They have never worn shirts of any kind, and have never had a dress with long sleeves. They have coats, shoes, and caps for winter, which they wear to day and Sunday School and when visiting. But at home all these unnecessary things are put aside. The minute they get home, shoes, socks and clothes come off as fast as eager little hands can remove them. Then clad only in sun pants they are ready for play. They run in and out of the house dressed only in this one scant garment. Sometimes their toes are very pink from playing in the snow, but it never seems to occur to them that it is anything out of the ordinary to go about in the winter with so little clothing.

They wade in the creek winter or summer. There is nothing they enjoy more than playing in the rain, regardless of the season, with nothing on but this one little garment. When they come in I give them a bath and a rubdown, but I think it would be just as well to let them give a shake like little ponies and go on with their play.

I remember when the older daughter was just a baby, I had put her to bed tucked in warm and snug, for it was a cold night in mid-winter. Later I went back to see that she was covered, and found her not only uncovered but also undressed. She had somehow taken off her pajamas and was lying on top of the covers sound asleep. I decided then that the skin on her body must be like the skin on her face and felt the need of no cover. It is true that now they enjoy being tucked in bed, and remain comfortable under cover all night.

Certainly it is an economical way to bring up children. Mine have fewer clothes than most children, and they last longer, because they are worn so little.

At school one day last winter the County Health Officer and his staff of nurses were visiting the school which my children attend. During the visit the teacher was urging the children to make a contribution of old clothing and shoes for the children who had no warm clothes for winter. A strong plea was being made, and the sympathy of most of the children was aroused. My younger daughter listened attentively, but was com-

pletely oblivious to any intended pathos in the story. She finally interrupted in her clear childish voice, and said: "Well, that's just like me. I never wear clothes at home except a sunsuit. You know I was born without clothes, and I just can't get used to wearing them."

President Manning: In making up the program for the meetings of the General Sessions, as long as it was my privilege to have something to say about them, I did say and said emphatically that in so far as it is an honor to appear before the General Sessions I wanted that honor to go to men who were born in North Carolina and who had distinguished themselves in other states.

Yesterday as you will recall we had Dr. Fred Rankin appear on the program. Dr. Rankin was born in Mooresville and was educated at Davidson College, taking his course in medicine at Maryland.

This morning we have another North Carolinian who has distinguished himself in other states and it is my pleasure and privilege to ask Dr. W. R. Stanford, of Durham, a former student of the guest speaker, to introduce him. (Applause)

Dr. W. R. Stanford (Durham): Mr. President, Members of the Society: In the practice of medicine we speak of the arts and sciences. In these modern times we see an inclination on the part of some of our profession to practice the science of medicine, forgetting that it is also an art.

I present to you a man whom I have known since 1918. I have worked on the staff of the University of Pennsylvania Hospital with him and to my mind he exemplifies the perfect doctor as nearly as any man I have ever known. He is scientific and yet he knows and practices the art of medicine.

Ladies and gentlemen, I present to you a North Carolinian, T. Grier Miller, Assistant Professor of Medicine at the University of Pennsylvania. (Applause)

Dr. T. Grier Miller: Mr. President, Dr. Stanford, Members of the Medical Society of the State of North Carolina: I am always glad to come back home to North Carolina, particularly when I can be among the many friends who are in this audience. I am deeply grateful to Dr. Manning for the invitation to appear here today.

The subject which I have chosen and which is not quite the same as appears on the program is, "The Diagnosis and Treatment of the Common Causes of Indigestion."

THE DIAGNOSIS AND TREATMENT OF THE COMMON CAUSES OF INDIGESTION

T. Grier Miller, M.D., Philadelphia

(From the Gastro-Intestinal Section of the Medical Clinic, University of Pennsylvania Hospital)

The title of this presentation is a broad one and includes a term, "indigestion," that may, at first thought, seem extremely vague, and

meaningless; a term that has been frowned upon by our profession for a good many years, and one that finally has been largely discarded for a more exact terminology. The fact is, however, that we have no other word to define a group of symptoms that is commonly encountered in patients and that includes certain of the following specific complaints: epigastric distress or pain, anorexia, gaseous eructations, regurgitations, heartburn, nausea, and vomiting; also at times headache, constipation, faintness, general weakness and nervousness.

Recent investigation, furthermore, seems to indicate that, no matter what the initiating cause of these symptoms, they all are dependent immediately upon disturbed motor phenomena of the stomach and duodenum. Thus no matter what the ultimate etiology may be, pain or distress in the epigastrium is usually dependent upon spasm of the pyloric sphincter, disturbed gastric peristalsis or undue tension on the stomach walls; no matter what their ultimate cause, nausea and vomiting, eructations and regurgitations, even anorexia, are perhaps always due to a reversal of the metabolic gradient or to true reversal of peristalsis with the stomach or intestines. Headache, palpitations and nervousness also are frequently on such a basis.

If, then, indigestion, no matter how it manifests itself and no matter what its underlying cause, is looked upon merely as a disturbance in the motor functions of the stomach and upper intestine, one is prepared to recognize it as a clinical entity, though never as a final diagnosis. In a similar way, and for convenience of thought, one is in the habit of speaking of another group of symptoms and signs as those of anemia; another, as those of asthma; another, as those of epilepsy, without in any way committing himself as to a final clinical diagnosis. The real problem when confronted with these syndromes is to discover the cause of the anemia or the asthmatic phenomena or the epileptiform attacks: likewise, the cause of indigestion. Only when the fundamental and causative disease process is uncovered can it be said that a diagnosis has been established.

With this definition of indigestion in mind I propose, first of all, to detail, in the order of their frequency, the disease processes which in my experience are most often responsible for the syndrome, and then to consider very briefly their diagnosis and treatment. I shall take them up in that order because I believe that it is always safest to approach any problem with the most probable explanations in mind first. Only when these are eliminated should the rarer causes be given attention.

In our clinic at the University hospital I have maintained for six years a card index of all the diagnoses made on patients, admitted to our wards and Gastro-Intestinal Section, who were proved to have gastro-intestinal lesions. During that time approximately 20,000 patients have been admitted to our medical clinic as a whole, including its out-patient departments, but not including admissions to the surgical or special clinics. Of these 2,109 were admitted to the Gastro-Intestinal Out-Patient Section and approximately 6,000 to the general wards: it is fair to assume that

in these two groups are included all the admissions to the medical clinic for digestive complaints.

I shall consider in this report only the 1,258 section cases, which have constituted our nine largest groups of the diseases that produce indigestion, and the 914 ward cases, admitted during the same period of time and similarly diagnosed. I shall refer particularly to the Section cases, as a selected group, because they were ambulatory and more nearly represent the type of patients met with in general practice. It must be appreciated, of course, that many rarer diseases, which also lead to the symptoms of indigestion, were encountered and might be added to this list. The nine diagnoses, which certainly account for the great majority of the instances of indigestion, and their relative frequency, as based on our selected group of 1,258 section patients, are: gall bladder disease, 31 per cent; duodenal ulcer, 24 per cent; functional gastric disturbance, 18 per cent; functional colonic disease, 6 per cent; duodenitis, 5 per cent; stomach ulcer, 4.5 per cent; chronic gastritis, 4 per cent; carcinoma of the stomach, 4 per cent; appendicitis, 3 per cent (see table). This classification at once leads to an opinion as to the probability of any particular one of these clinical conditions being the cause of an unknown case of indigestion.

Gall bladder disease is commonly regarded as the most frequent cause of indigestion: 388 or 18.4 per cent of all our special section patients were eventually so diagnosed (31 per cent of the selected group); in addition, in the 6 years, we had 277 such cases admitted to our medical wards, a total of 665 cases. This frequency of cholecystic disease is in keeping with that of other large clinics. An appreciation of it should lead us to consider gall bladder disease first in every patient with indigestion. Often the history and the physical examination are sufficient to establish the diagnosis, but again they may be misleading, and in all suspected cases of the chronic type it is wise to check the diagnosis by biliary drainage and by the Graham-Cole radiological test. These latter procedures, in our hands, are of about equal diagnostic value, and second only to the history in importance. Gastro-intestinal roentgen study, when it shows duodenal adhesions in close relationship with the gall bladder, and the tests for bilirubinemia, when they show latent jaundice, are also factors in its more frequent recognition.

The history, however, always deserves greatest consideration, especially when it includes an onset in a stout woman after a pregnancy, a characteristic type of colicky attack, occurring without relationship to meals and at irregular intervals, and subsequent jaundice. The occurrence of eructations, disturbances of appetite, nausea and vomiting, and palpitations, I have never considered of specific value since they are so common to all the diseases under consideration: they simply add to the picture of indigestion.

As to treatment, the chief question concerns itself with a decision as to whether it should be medical or surgical. Regarding the acute cases, when the systemic reaction is marked, with considerable elevation of the

fever curve, an increasing pulse rate, chills and sweats, and when localized pain, tenderness and rigidity are pronounced, whether a mass be palpable or not and whether jaundice be present or not, all are now agreed that surgery should eventually be resorted to. Under such circumstances, however, most surgeons, unless the situation constitutes an emergency, prefer to delay operation for 24 to 36 hours or even longer if by that time the progress of the case is not unfavorable.

In reference to the chronic cases in which gall stones can be demonstrated, I believe that, unless there be clear-cut contraindications to any type of surgery, operative interference should be urged. When, however, stones can not be diagnosed and it is clear that the symptoms are not due to some extra-gall bladder condition, it is well to try a medical program first, being at all times ready, if the symptoms persist, to resort in the end to surgery.

Medical treatment is clearly indicated for the mild acute cases, for all the surgical cases up to the time of operation, for those stone cases that refuse operation or in which it is contradicted, and for all the cases in which the indications for surgery are not clear.

The medical treatment for the chronic cases consists essentially in clearing up foci of infection, avoiding excessive physical and nervous strain, regulating physical activity, prescribing fixed periods of rest and keeping the weight within reasonable limits. The diet should be largely carbohydrate, but I have not found an excessive reduction of the fats necessary or desirable: they may indeed be helpful when the bile flow is sluggish, probably much more so than biliary drainage. Drugs, except sedatives and mild laxatives, probably are of no value.

Duodenal ulcer, as the second most frequent cause of indigestion, was the diagnosis in 302 or 14.3 per cent of all our section patients (24 per cent of the selected group with indigestion). It occurred also in 188 of our ward cases. If gastric ulcer is included it explains almost as many of the total group as does gall bladder disease. Thus ulcer too should be considered immediately when any patient presents himself with the complaints of indigestion. The symptoms are specific for ulcer in only a few respects: the fixed relationship of the epigastric distress to meals and the periodicity of the attacks. In these respects, however, they are so characteristic that, when elicited, they may lead promptly to the diagnosis. As with gall bladder disease, however, they should not be relied upon to the exclusion of other special investigations, particularly roentgen study. The latter in our experience leads to a correct diagnosis in 90 or more per cent of the cases, and I believe that every patient, no matter what his circumstances, is entitled to radiological investigation before consenting to either medical or surgical therapy for ulcer. Furthermore, most patients with indigestion should have ulcer eliminated by X-ray before any other diagnosis is considered final. Gastric analysis is of value chiefly in that it determines the presence or absence of free hydrochloric acid, duodenal ulcer rarely, if ever, being present in its absence.

The treatment of ulcer should be medical unless complications, such as perforation, repeated hemorrhages, organic stenosis, or malignant degeneration have occurred. In spite of this it is our practice in dealing with gastric ulcer to urge surgery unless on re-examination by the roentgen-ray after three weeks there is clear-cut evidence of healing: this is to avoid the possibility of treating medically an ulcer that is already malignant.

The medical treatment is primarily a matter of affording rest to the patient, both physical and mental; secondarily it is a matter of diet. As to diet, the essentials are that it be non-irritating mechanically and chemically and that it be given in small amounts at fairly frequent intervals so as to provide constant neutralization for the gastric acidity. Alkalies as a rule are not necessary except in the highly acid cases, when for a few weeks at least they should be employed. I have rarely found the relaxants, such as belladonna, indicated, but sedatives often are most useful. On such a program I have never seen an ulcer perforate or bleed profusely and only rarely have I observed an increasing stenosis; often the obstruction grows less and less marked. Recurrences of ulcer symptoms do eventually occur in some instances and they may be so disturbing to the patient, usually one who is not coöperative, that operation may have to be resorted to: even then such patients are far more likely to have subsequent symptoms than are those operated for perforation, hemorrhage, or stenosis.

Duodenitis should be considered with ulcer. It is a diagnosis which we make on the basis of ulcer symptoms and the roentgen findings of an irritable duodenal cap, as seen fluoroscopically, without evidence of a fleck or of a constant deformity in the films. It occurs in patients with and without gastric acidity. It has been observed most often in highly nervous individuals and may be evidence of mere local functional disturbance, though many believe it has an inflammatory basis. We have not seen it lead to ulcer formation, though some foreign workers look upon it as a forerunner of ulcer. It was diagnosed in 65 of our section group, in 3.1 per cent of the total admissions, in 5.1 per cent of the special group. Its treatment is that of ulcer, but the results are not so good.

I now come to the functional disturbances of the stomach, which do not constitute such a large group as one doing private practice might expect. In our section patients we had only 225 cases, or 10.7 per cent of the total admissions (18 per cent of the selected group). If we add those with symptoms primarily referable to the colon, (78 cases), and usually with the symptoms of indigestion as well, we have a total percentage of 14.4 of the gastro-intestinal patients. In addition we have seen in our wards 80 gastric and 132 colon cases in which no organic disease could be demonstrated. For our special 9 groups the percentage of gastric and colonic cases that were functional is 24.2.

This is certainly much lower than in ordinary private practice: in my own private experience the functional cases constitute more than 40 per cent of those with the symptoms of indigestion. The greater incidence in

these patients is due in part to the fact that usually, because of the expense, they are less thoroughly studied, but also, and perhaps in larger part, to the well-recognized opinion that patients in the higher social and cultural scale more readily succumb to nervous and mental disturbances.

The functional gastric cases may be defined as those with the symptoms of indigestion in which no organic digestive disease can be demonstrated. Strictly speaking, it may be said that the gastric disturbances incident to gall bladder disease or appendicitis should be grouped as reflex gastric dysfunctions, but arbitrarily, and for clarity of thought, we have preferred to consider all such dysfunction as part and symptomatic of the underlying digestive tract disease. When, however, the gastric disturbance is dependent upon disease outside the digestive tract, as, for instance, upon pulmonary tuberculosis, uremia or a central nervous system lesion, or when it is due to a disturbance in the mental processes of the individual, as in any of the forms of psycho-neurosis, we have felt it necessary to include a subsidiary diagnosis to indicate involvement of the digestive tract.

The diagnosis in these cases is often most difficult and requires the maximum of patience and industry. It is necessary first of all to eliminate organic gastro-intestinal disease by every means available, to consider all the extra-digestive tract lesions that secondarily produce gastric symptoms, such as disease of the cardio-vascular, renal, respiratory and central nervous systems; then to analyze the patient's physical and mental make-up, his environmental factors, his social and financial status. Only on such a broad basis is it ever justifiable to make a functional diagnosis.

The treatment needs no discussion here, but it should be pointed out that its success will depend entirely upon adequate management of the primary lesion.

I shall not refer specially to the functional colon cases, except to say that they are frequently on the same basis as the gastric cases, are commonly associated with gastric symptoms, demand similar prolonged diagnostic study and must be managed in a similar way.

Now, for the first time, I come to a consideration of organic gastric disease. You will note that the first organic gastric disease, gastric ulcer, is sixth in our group of the diseases that produce indigestion. It constitutes only 4.7 per cent of the cases, and has been dealt with under duodenal ulcer.

Chronic gastritis and carcinoma of the stomach are the other organic gastric diseases, and they, together with ulcer, make up only 12.7 per cent of the entire group, each appearing only 4 times in every 100 cases with indigestion. One should not, therefore, get into the habit of thinking first of a gastric lesion when confronted with a case of indigestion: the more common lesions, especially gall bladder disease and duodenal ulcer, should be considered far ahead of any stomach lesion.

These truly gastric diseases are, however, of great importance because of their serious consequences and they should never be overlooked in a

diagnostic study. Chronic gastritis, according to Arthur F. Hurst, is the most important disease to which man is heir. If one accepts his viewpoint regarding the etiologic significance of this affection in relation to gall bladder disease, ulcer, carcinoma of the stomach, addisonian and certain other anemias, and even such disturbances as arthritis and pellagra, that opinion is fully justified. Certain it is, at any rate, that chronic gastritis frequently precedes and predisposes to gastric carcinoma, primary pernicious anemia and idiopathic microcytic anemia. It therefore, is highly important.

Unfortunately, chronic gastritis is rarely diagnosed since usually no symptoms appear until the complications set in. In every patient, however, who is achlorhydric, has roentgen evidence of gastric mucosal hypertrophy and shows consistently mucus in the gastric contents, the diagnosis should be made; and such a patient should be kept under general observation and should have occasional blood studies and roentgen examinations in order to discover any secondary development in its earliest stage.

Carcinoma of the stomach is as common as gastric ulcer. Its diagnosis may sometimes be suspected on the basis of the patient's history, but emphasis should be placed on the fact that the complaints are often only those of vague indigestion, and unless further studies, especially gastric analysis and radiological investigation, are made in such cases, the lesion will usually be overlooked in the early stage when radical surgery has something to offer. In our experience only about one third of the cases are diagnosed early enough to justify resection, the only therapeutic measure that need be referred to in this presentation: even of these a good eventual result is obtained in only a small percentage.

Appendicitis foots the list. This is significant in view of the reports frequently made by surgeons to the effect that appendicitis is a common cause of indigestion. In part our low figure for this disease may be explained by the fact that the acute cases usually are referred to surgical clinics directly, but it is hardly justifiable to include such patients among those with indigestion: their symptoms are of extremely short duration and do not ordinarily present a real problem in diagnosis. Furthermore, when surgeons speak of curing indigestion by appendectomy they are referring to the chronic or subacute recurrent cases: those cases we see in medical clinics but the number is not large. Most of our cases were of the subacute recurrent type. The truly chronic cases are usually symptomless and require treatment only when complicated by constricting adhesions or by stenosis of the appendix itself. The symptoms commonly ascribed to chronic appendicitis usually are due to some other disease process and so persist after appendectomy: to this internists and surgeons alike are now largely agreed.

In this very brief consideration of a very large subject I have naturally touched upon only the high points in diagnosis and management. If I may be even more general in a few additional comments I should like to point out that all the lesions mentioned must be thought of when a patient

presents himself with indigestion, and even other less common disturbances when none of these seems to explain the whole picture.

The history of the case—the sex and age, the family and social background, the onset and duration of the symptoms, their nature and severity, time of occurrence in relationship to meals and to special physical or mental strain, and their persistence—is usually of the greatest help in arriving at a correct diagnosis. Fortunately such data are the easiest to obtain, require no special apparatus, only intelligence and good fundamental training on the part of the physician, and involve minimal expense on the part of the patient.

In many instances a carefully taken history alone is sufficient to lead to a diagnosis, but there can never be jusitfication for not adding to such subjective data as can be secured from the patient a complete and thorough physical examination, which again requires only adequate fundamental training in clinical medicine, meticulous care and thoroughness, and the use of one's special senses. The value of the physical examination in cases of indigestion lies largely in the detection of some disease outside the digestive tract which is responsible for the symptoms: a distended urinary bladder due to prostatic obstruction and leading to the digestive symptoms of uremia; evidence of cardiac disease giving hepatic and portal system congestion; infectious processes with toxic disturbance of the stomach. Often in gall bladder disease, frequently in ulcer and usually in the functional disturbances of the stomach the physical findings are negative, but that never excuses a careless or hurried physical examination.

Special laboratory procedures are often required and in all cases, I believe, a urinalysis, blood counts, a Wasserman test and a gross inspection of a feces specimen are indicated. These also have their chief value in a negative way, leading to the detection of otherwise unsuspected fundamental disturbances, such as diabetes, nephritis, syphilis, cardiovascular disease, pulmonary pathology and rectal lesions. None of these procedures is time-consuming or expensive. Gastric analysis, while of relatively limited value, is indicated in many cases, especially to discover or eliminate achlorhydria which may depend upon chronic gastritis or some of its complications. This also may be a very simple test, requiring little of the physician's or the patient's time.

Roentgenological study, unfortunately at present, is not only expensive but requires special training and skill which few practicing physicians possess. Yet it is so important, not only for the proper care of patients but also for the protection of physicians, that one can not doubt that in this era of social welfare, some means will be devised soon to make it available at a reasonable cost to all with obscure digestive disease.

I have attempted, then, to identify the diseases that are most often responsible for so-called "indigestion," to call attention to some of the more important procedures indicated for their diagnosis, to define at least a point of view regarding their treatment, and to emphasize especially the

value in diagnosis of a well taken history, a thorough physical examination and the more commonly employed laboratory procedures. (Prolonged applause)

Table —Number of New Patients with Certain Diseases that Commonly Produce "Indigestion" admitted to the Gastro-Intestinal Section of a Medical Clinic from 1928 to 1933, Inclusive; Percentage of Admissions for Each Disease in Relation to Total Admissions and to the Group; Number of Extra Admissions to the Wards of the Clinic During Same Period.

	*New Admissions to Section**			*No. New Adm. to Wards*	*Total No. Adms.***
	No.	*Per cent of Total Adm.*	*Per cent of Group*		
G. B. Diseases	388	18.4	31	277	665
Duodenal Ulcer	302	14.3	24	188	490
Functional Gastric	225	10.7	18	80	305
Functional Colonic	78	3.7	6.2	132	210
Duodenitis	65	3.1	5.1	25	90
Stomach Ulcer	60	2.8	4.7	45	105
Chronic Gastritis	52	2.4	4	17	69
Stomach Carcinoma	51	2.4	4	92	143
Appendicitis	37	1.3	3	58	95
Totals	1258	59.1	100	914	2172

* Total number of new patients admitted to Section for all diseases was 2109.
** Total admissions to wards for all diseases was approximately 6000; for entire Clinic, about 20,000.

President Manning: If I ever have a swelled head or die of a dilated heart, it will be because of my pride in the excellent type of work that doctors from North Carolina are doing either in or outside of the state.

In the correspondence we had with Dr. Miller about coming to this meeting he said that he was engaged in some special research work and that he could not leave it, so he has come here at considerable sacrifice. I told him that ninety per cent of his audience would be general practitioners. I think perhaps I can say that ninety-nine per cent of the audience belong to that group.

His talk on indigestion filled the bill. It is just these types of cases that the general practitioner has to deal with, and I want to thank Dr. Miller not only on behalf of the Society but on my own behalf for coming here and giving us this most instructive talk on this common subject. I am sure that those of us who heard it will go out better qualified to undertake the handling of this very, very common condition. (Applause)

The next paper on the program is, "Prevention of Pellagra," by Dr. W. J. McAnally, of High Point. (Applause)

Dr. W. J. McAnally: Mr. President, Ladies, and Gentlemen: Were it not for my knowledge of your intelligent and patriotic interest in the people of North Carolina I would not have the nerve to present this paper which I propose to present under the caption of, "Prevention of Pellagra in North Carolina." The reason I do so is in the hope that we may develop better dietary habits among the people of our state.

PREVENTION OF PELLAGRA IN NORTH CAROLINA

By Dr. W. J. McAnally, High Point, N. C.

Grim visaged, ignorant, gaunt and cruel sits poverty, a dominating figure in many homes in North Carolina, throttling the reasonable ambition of our citizens, throwing dust in the clear, sparkling eyes of youth, destroying the hopes of thousands, yet she hugs to her ugly unproductive bosom Disease and Crime, the terrible twins which she has spawned and breathed into their nostrils the blight of hopelessness and hate. To mentionall the progeny of this frightful mother and boon companion of human misery would be a laborious task.

And to a body of medical men only one of the terrible children of this awful mother will be considered, and this one just as briefly as an intelligent presentation of the problem will permit. This one is Pellagra.

While unwilling to take your time to ramble through a forensic labyrinth of discussion as to the etiology of pellagra, it is presumed that nearly all medical men believe and accept as proven the statement that pellagra is due solely to improper diet. It hasn't been my observation that diet will cure mental manifestations of this disease. The fact that feeding does not restore the damage to brain cells caused by pellagra does not disprove its dietary origin, though some excellent observers think it does. And with approximately thirty thousand persons in the state sick and more or less incapacitated all the time, and about three hundred confined in our state hospitals for the insane as results of pellagra, and about one funeral a day in the state from this type of starvation from the lack of certain types of foods, you will, I trust, be kind enough to listen just for a few minutes to suggestions which will entirely eliminate pellagra from North Carolina. Now it is thoroughly understood that a statement of such broad and far-reaching import will at once lay the one who makes it open to the suspicion of being an impractical visionary. But keep in mind this fundamental fact I, in the outset, assumed the dietary origin of this disease and will decline to mention further the etiology because, so far as I am concerned, there is no more question about the cause of pellagra than there is about the etiology of scurvy and beri-beri.

Since the lack of certain foods produces such lamentable and tragic results in North Carolina, and this intolerable condition should no longer be permitted to exist, it would seem to be the plain duty of medical men to point out the simple remedy and assist our able state government in the

measures which will eradicate a disease which is not primarily a medical problem.

North Carolina has a long growing season and an abundant rain fall, fine soils which will produce bountiful yields of almost every crop suited to the temperate zone, and all domesticated animals and birds thrive here equally as well as anywhere else on earth.

That the struggle for existence should, in North Carolina, be so difficult that about ten per cent of the people living in the imperial county of Guilford must receive what is actually a federal dole in order to keep body and soul together, is a tragedy of the first order, and then Guilford is not worse than most of the other counties of the State. What is wrong? We have had no pestilence or destructive drought. Yet actually our people die of a form of starvation, for such is every death from pellagra. Guernsey milk and collards will prevent all pellagra. Putting it a little better, let's say that milk, fruits, vegetables, fresh meats and eggs will positively eliminate pellagra from our state. Why is it not done? Just one reason. Our folks have not known how to produce what they need, nor have they understood what they should have. One great slogan, "Popular Education," made famous by one of our great governors, needs desperately bad to have a present day interpretation. Why may not our great state system of public education teach us more about how to produce the things we must have if we hope to live in any comfort, instead of being incapacitated by pellagra, or perhaps become insane or die early? One important lesson in math and it is worth noticing that so many subjects are taught that the people have acquired the habit of abbreviating a large number of the courses. The important math problem we so desperately need to learn to solve is how to multiply the things we need for a fuller, better, more abundant life. But Gym., Ec., Trig., etc., are so cultural that they are required if one hopes to become a Grad; and no time is given to anything looking even in the direction of pork-chops, rents or clothing. Just leave such commonplace things to the Public Welfare Board—Uncle Sam can provide these vulgar things, and he has to do it right here in a state which can and should be a land of plenty, flowing with milk and growing the finest flavored fruits and vegetables on earth. Another famous slogan which was so loudly heralded all over North Carolina just a short while ago that it was almost enough to make Max Gardner popular. "Live at Home." Lots of you heard it. Sounds real comfy, does it not? But what shall we do to get the rations? Jesus on several occasions took up this very subject of food. It is not recalled that the "Live at Home" cry suggested fat-back from Indiana, white beans from California and yellow corn bread from Iowa. But County Commissioner Joe Hoffman of Guilford County and I tried to eat a meal at a prison camp in North Carolina January, 1933, on Sunday, and as God is our witness that is all there was for dinner except water. The hungry stomachs and the water were the only contributions North Carolina made. Now upon state owned lands there could have been grown far better food and by prison labor, much cheaper than

what was furnished even if it could have been stolen at the place where produced.

There is upon the statute books today a provision enabling the North Carolina Highway and Public Works Commission to produce agricultural lime and sell it to North Carolina farmers at cost. When this is done our farmers can afford to sweeten their acid soils and be able to grow clover, hay and grains cheaply, and this will automatically increase the livestock production, milk, butter, cheese and fresh meats and everything else we need. Successful agriculture in North Carolina is impossible without livestock. Pellagra and poverty must persist without successful farming. Every one of the prison camps in North Carolina should be a practical agricultural demonstration station. All this production contemplated is for our own people, prisoners and civilians. We are not thinking of going anywhere else for markets.

The state government which improves the curricula of our public schools, produces agricultural lime for our farms and instructs our people how to get more and better crops, will abolish poverty in agricultural North Carolina and eliminate pellagra. When you banish from the state ignorance and inefficiency, you drive out the fruitful parents of poverty, crime and disease, you will clip the wings of the destroying angel and you will turn away the wrath of God from the homes of our people.

President Manning: The next paper before the session is, "The Retarded Child in North Carolina," by Dr. F. M. Register, Superintendent of Caswell Training School at Kinston. (Applause)

THE RETARDED CHILD IN NORTH CAROLINA

By Dr. F. M. Register
Superintendent, Caswell Training School, Kinston

The retarded child is a problem in which all are interested to some extent.

First, the parents are, of course, most vitally interested.

Second, the public school teachers.

Third, those officials whose business it is to provide extra teachers for this deficient group or to provide custodial care.

Fourth, the citizens generally.

I shall speak only on one phase of this subject, that is, institutional care for these children and what I shall have to say will revolve around the Caswell Training School; some of its present problems and some suggestions for a future program and plan for this school.

The Caswell Training School was established by act of 1911 General Assembly. The bill was introduced by Dr. Ira M. Hardy, who was its first superintendent. The consolidated statutes prescribes the purpose of the Caswell Training School as follows:

(a) To segregate, care for, train and educate mental defectives.

(b) To disseminate knowledge concerning the extent, nature and menace of mental deficiency.

(c) To suggest and initiate methods for its control, reduction, and ultimate eradication from our people.

(d) To maintain a bureau for instructing the public with reference to the care of mental defectives who remain in their home, and for the care of discharged inmates.

(e) To maintain a psychological clinic for study and observation of mental defectives charged with crime, and to give expert advice in all cases of mental defectives. A most comprehensive program, but a program that in twenty years has not quite reached first base.

In 1925, Governor A. W. McLean appointed a committee on the Caswell Training School and its relations to the problem of the feeble-minded of the State of North Carolina. This committee was composed of W. S. Rankin, M.D., Chmn., Gilbert T. Stephenson, Sec., A. T. Allen, J. O. Carr, W. C. Dowd, Thurman Kitchin, M.D., Nathan O'Berry, H. A. Page, and James A. Vernon, M.D., A splendid committee of men of intelligence, sympathy and honesty. With my old Chief Rankin as chairman, I know that some hard work was put in by this committee. A very comprehensive report was made by this committee to Governor McLean in August, 1926. This report is a classic. I shall quote fully from this report. In fact, this paper will be more or less a review of this report along with some ideas I have gathered since my connection with Caswell Training School some eight months ago, some by observation and some by consultation and correspondence with people who have kept abreast of the time in caring for and teaching those with retarded mentality.

In the beginning, let us define feeble-mindedness. According to the Royal College of Physicians, it is this—a feeble-minded person is one who is capable of earning a living under favorable circumstances, but is incapable from mental defect existing from birth, or from an early age—(a) of competing on equal terms with his normal fellows; or (b) of managing himself and his affairs with ordinary prudence. This definition can be briefly stated as follows: "Feeble-mindedness is social incompetence due to arrested mental development." Quoting from report, "It is clear that we have in this definition of feeble-mindedness one of great elasticity. A person might be socially efficient and therefore normal-minded under some conditions of life, say, in an agricultural community, and socially inefficient or feeble-minded under other more complex conditions of life, as in a metropolitan center. It is probably true that the development of a more complex civilization has brought to the surface much feeble-mindedness that would have remained submerged and unobserved under the less complex civilization of other times.

The psychologist classifies the feeble-minded as follows:

CLASSIFICATION OF FEEBLE-MINDEDNESS

(1) The idiot with a mind not advanced beyond the normal at the second year of life and with an I. Q. of 25.

(2) The imbecile with a mind developed somewhere between that of the normal mind of the second and seventh year with an I. Q. between 25 and 49.

(3) The moron with a mind developed somewhere between the normal of the seventh and eleventh years and with an I. Q. between 49 and 70. It should be noted here that the psychologist in these tests and measurements takes account only of intelligence and leaves out of account, the emotions or temperament and the will or self-control, two of the three qualities of mind which may fit an individual, even lacking in averages, to live not only a harmless, but helpful social existence. Such an individual, although feeble-minded under tests of the psychologist, is not feeble-minded according to the definition of the Royal College of Physicians."

FEEBLE-MINDED POPULATION OF NORTH CAROLINA

Quoting again in part, "Estimates of the feeble-minded population of North Carolina will vary greatly according to which conception—the psychological or sociological—is followed—sociological estimate would be about 60,000 feeble-minded for North Carolina and are divided into three classes for purposes of treatment:

(1) The feeble-minded who are adjusted to their social environment. This class constitutes about 75% or 45,000, and needs no treatment.

(2) The feeble-minded who are only partially adjusted to their social environment and need some treatment. This constitutes about 20% or 12,000.

(3) The feeble-minded who are unadjusted to their social environment and need institutional care. This would be about 4% or 2,400."

THE FEEBLE-MINDED INSTITUTIONAL POPULATION OF NORTH CAROLINA

The feeble-minded institutional population of North Carolina should be about 2,500—of this number about 20% or 500 idiots; 30% or 750 imbeciles, and 50% or 1250 morons. This is an average of 5 idiots, 7 imbeciles and 13 morons for the average county. In Caswell Training School we have a yearly population of 650, our capacity, and at this time we have 700 on the waiting list. According to estimates, this leaves 1,050 needing institutional care unaccounted for. But if it were generally known that we could take care of all on the waiting list, the 1,050 no doubt would soon appear. The foregoing figures, giving the actual institutional charges and the potential institutional population for the feeble-minded of North Carolina should not discourage, but rather encourage the social interest of the state to grapple with a problem which does not lie beyond their resources, but well within reasonable means, and, as a matter of fact, is less expensive when adequately dealt with than when feared and avoided.

What is saved in not providing adequate institutional care for the feeble-minded is, in all probability, lost many times over in unnecessary court procedure, in the case of prisoners and in the unnecessary burdens and hindrances which the uncared for institutional case lays upon an uninformed and negligent society. The financial burden for properly taking care of this problem need not be great. When apportioned between the four possible sources of revenue upon which it may be imposed, to wit:

(1) The earnings of the feeble-minded. (2) Parents able to pay in part or in whole. (3) The counties. (4) the State.

INSTITUTIONAL CARE AND TRAINING

Quoting from report, "Institutions for the feeble-minded through segregation and supervision render three distinct types of service; (1) preventive, (2) custodial, (3) educational."

PREVENTION. Institutions for the feeble-minded through segregation and supervision prevent the reproduction and multiplication of feeble-minded people to a small extent when we remember that only about 1% of the feeble-minded are institutionalized and 99% are out of institutions uncontrolled and uncontrollable. Moreover, it will never be possible or even desirable to institutionalize more than 5% or 10% of the feeble-minded.

Quoting from the McLean Commission report:

"CUSTODIAL. Institutions for the feeble-minded exercise their custodial functions in taking care of the idiots and low grade imbeciles. These types compose the burdensome element of the problem. These cases usually make up about 40% of institutional cases. The idiots and imbeciles as members of a family in which there are other normal children embarrass and disorganize family life and it is a service greatly needed and one that the state should render to relieve normal children of the embarrassment of association with these unfortunates. Of course, little can be done for this group, but practically all of them can be taught something that will make their lot in life healthier and happier and, at the same time, make their kinspeople more happy and satisfied with this burden of kinship—a burden that has fallen on some of the best families in the state and will continue to fall on others.

"EDUCATIONAL. The educational work of the feeble-minded school includes: (1) Kindergarten work for the younger teachable group (although on account of lack of funds, there is no kindergarten work being done at Caswell). (2) Simple reading, writing and arithmetic up to the third and fourth grades of the graded school. (3) Vocational training. As a rule, vocational training is substituted for school work when a feeble-minded child has fallen 2 or 3 years behind his classes."

Dr. Charles Bernstein of the Rome New York State School says, "About 20% of an institutional population will be of school age and proper school cases and 40% will constitute the stable and economically

efficient high grade imbecile and moron group suitable for colony and parole life." Quoting again from the report, "What the high school, college and university may do in advancing those of higher mental levels towards proficiency in the more difficult trades, arts and sciences, the institutions for the feeble-minded may do toward advancing those of the lower mental levels towards proficiency in the simpler, but multitudinous duties that enter into the work of the community. The efficiency of the training school should be measured by its products, the number and type of those it restores and returns to society. The idiot and low grade imbecile will remain with the institution as custodial cases, but the high grade imbeciles and morons, after an institutional life and training of from 4 to 6 years, should be able to take the first step toward social restoration through transfer to a colony."

THE COLONY

Quoting again from the report, "A colony for the feeble-minded has been defined as any group of inmates living together under supervision outside of the parent institution while remaining under its jurisdiction and contributing to a greater or less degree by labor to their own support. Ordinarily, about 40% of a feeble-minded school should be suitable for colonization. As the institution for the feeble-minded develops and passes on its population to the colony, so the colony develops and passes on its population to the community. It is estimated that 80% of a colony can be passed on to parole." The Rome New York School now has 49 colonies for boys and girls. Caswell Training School now has a beautiful piece of land, 300 acres, for colony purpose. This land is nicely situated three miles by hard surface road from the parent institution accessible to electric service. A colony for boys on this land was one of our CWA projects. Some of the materials have been delivered, whether the project materializes remains to be seen.

Now, we come down to the recommendations made by the McLean Committee and are almost as applicable today as when they were made. We also find that few of these recommendations have been carried out.

Quoting from the report, (1) "It is recommended that the management of Caswell Training School continue to give preference in the admission of the feeble-minded to the school to those cases that seem to be the most burdensome or troublesome to their families and communities, but, in the admission of cases, to endeavor to so combine the different types of feeble-minded as to give the greatest possible relief to society coupled with sound economy in the operation of the institution. It is believed that such a combination of types would call for approximately 20% idiots, 30% imbeciles and 50% morons. In such an institutional population, the custodial cases, idiots and low grade imbeciles, could be cared for to a considerable extent by high grade girls who would also be trained and assist in cooking, serving food, keeping clean and orderly, the institution, and other work of a domestic character. The high grade boys would be trained and assist in the work of the farm, garden, dairy and work shop.

This recommendation is being fairly well carried out. We have over 200 boys and girls on our work list.

(2) It is recommended that the following service objective be used for measuring and judging of the efficiency of the operation of the Caswell Training School.

(a) A per capita cost that compares favorably with similar cost for other institutions for the feeble-minded located in the southern states.

(b) The colonization of at least 60% of all inmates with I. Q.'s above 40 who have been in the institution for a period of five years.

(c) The parole of 75% of those who have been members of the colonies for a period of three years.

(d) The discharge of 20% of the parole cases each year.

(e) The earning of at least 60% of their cost of maintenance.

(3) It is recommended that before any additional buildings are constructed, a careful plan for the future possible extension of the institution over a period of twenty-five years with ultimate accommodations for 2,000 inmates be designed by an architect who is familiar with modern arrangements and types of buildings that are needed in the care of the feeble-minded.

(4) It is recommended that legislation be enacted which will provide and require a physical and mental examination, after a scope and manner jointly approved by the State Superintendent of Public Instruction and the Secretary of the North Carolina State Board of Health, of all public school children who have become retarded to the extent of one year in their classes. And it is further recommended that the State Superintendent of Public Instruction and the Secretary of the State Board of Health jointly recommend to the authorities of those communities where children are found to be either physically or mentally defective what measures should be taken for their relief.

(5) It is recommended that legislation be enacted authorizing the superintendent of the state penitentiary, the superintendents of any of the state hospitals for the insane, and the superintendent of Caswell Training School to have the operation for sterilizing either a male or female inmate performed when in his judgment such operation is in the interest of the general welfare and when the recommendations of one of the said officials have been made in writing, with a suitable record of the case, to and approved by both the State Commissioner of Public Welfare and the Secretary of the North Carolina State Board of Health.

(6) It is recommended that parents who are able to pay in whole or in part for the care of their feeble-minded children in Caswell Training School should be required to do so. To this end, the board of directors should adopt a scale of payments graduated to families with varying incomes and obligations. The committee believes that the directors should expect to receive, after four or five years, 20% of the necessary income of the school from this source.

It is recommended that the custodial cases, idiots and low grade imbeciles, which without the school would be county charges, be paid for (except in those cases paid for by parents) by the counties from which the inmate is admitted.

It is recommended that the cost of the care of those inmates of the school capable of elementary education and training—that is, the high grade imbecile and moron group—be provided by the state, except for those cases for whom such cost has been provided in whole or part by parents.

(7) It is recommended as the next step in the further development of the Caswell Training School and the general policy indicated in the body of this report that the General Assembly of 1927 be asked to provide additional capacity for 150 inmates. This will increase existing institutional provision from 540 to 690. Provision for the 150 additional cases should provide colony care for 60 inmates, institutional care for 90 inmates. The cost of construction for institutional cases need not exceed $1,000 an inmate, and can probably be obtained for less. An appropriation of from $110,000 to $120,000 would provide for the addition of 150 feeble-minded to the 540 which the school will have January 1, 1927. Moreover, by January 1, 1927, the school will have probably a waiting list of approximately 150 applications.

It is recommended that, until the school becomes so organized as to incorporate the colony and parole work as suggested in the body of this report, and until it has begun to receive support from parents who are able to assist in defraying the cost of their feeble-minded offspring, $300 per capita for maintenance be considered as a reasonable expenditure for the work of the school."

Thus ends the McLean Committee Report in the above seven recommendations. The report of the McLean Committee is the Old Testament of the Caswell Training School prophesying what should come to this institution. We think it time now for these prophecies to be fulfilled in a New Testament. For many years the friends and inmates of Caswell Training School have been looking for the Star that would announce the birth of a new day for our beloved institution. In the recommendations of the committee, that our boys and girls do certain part of the work, this recommendation is being carried out now. Our boys and girls to the number of 200 do all our laundry to the amount of 10,000 pieces a week, all our sewing—making and mending garments, do all the work in the hospital that six nurses cannot do, take care of all our buildings, do all the baking and help in the kitchen and dining room. They do dairying, garden work, and farm work, take care of our 600 hogs, take care of the bees, help the plumber, electrician and carpenter, help in the power house, etc. Were it not for these boys and girls, we could not carry on. I am now trying to work out some plan by which these boys and girls will be paid a small weekly stipend. I think it most wonderful that these boys and girls have done such wonderful work for so little in return.

(2) I would recommend that all expansion for the next twenty years be made by the Colony route, two colonies each year with the exception of a small expansion every year or two for idiots. With this kind of a building program, our situation for taking care of more children can be met. An expansion as above would not necessitate the enlargement of our present dining room, hospital, heating plant, electrical plant, or the buying of more land.

(3) I would recommend that Caswell Training School have a parole officer to follow up cases on parole and to investigate those desiring to enter the school.

(4) I would recommend a part-time traveling clinic, consisting of a psychiatrist and two psychologists, to examine those children entering school for the first time and those in school retarded as much as three years. These children to be selected by health officer. This psychiatrist practicing in the school when not on clinics. I would recommend that surgical work, sterilization, etc., be done in the hospitals in Kinston by the local surgeons in place of trying to make the present hospital a surgical hospital. I would recommend further that only psychiatrists, general practitioner, and a dentist or dentists be employed on full time; that the eye, ear, throat and nose work be done on a fee basis by the local specialists.

I would recommend that we double our teaching force, besides adding two kindergarten teachers and a vocational teacher to our staff; that we increase the number of matrons and attendants and none be employed except those meeting certain requirements laid down by State Board of Health, State Welfare Department, and Superintendent of the School. I would recommend that each year a summer school be held at Caswell Training School to give instruction to teachers who teach retarded classes in state schools.

(6) I would recommend that the Caswell Training School plant be put in first class physical condition at once on account of economy and sanitation.

(7) I would recommend a small building to isolate tuberculosis patients. We only have a small number.

(8) I would recommend that a sufficient appropriation be made in order that better care can be taken of the physical condition of the school plant and above all to improve the morale of the heart and soul of the institution—the children—by giving them better clothes, better food, more instruction and more play.

We must remember that the only practical difference between normal children and defective children is that the latter require more special training. They can be taught to do useful things and thrive and blossom under kindness, approval, praise and reward. Their affections are lively and attach readily to whoever wins their confidence.

We want to make this our motto: "Caswell Training School exists for the children who call it home." And we want the state to know that every day is visiting day at Caswell.

PRESIDENT MANNING: I think it it important that the medical profession of North Carolina should know what is going on in these semi or entirely medical institutions in this state. I think we should have something towards which we should work, and I have asked Dr. Register to outline a program so that we would have something towards which we could work in connection with this problem of the feeble-minded.

The next paper on the program is, "Infancy and Maternal Mortality as it Applies to the General Practitioner," by Dr. Forest M. Houser, from the Section on Public Health and Education.

INFANCY AND MATERNAL MORTALITY AS IT APPLIES TO THE GENERAL PRACTITIONER

By DR. FOREST M. HOUSER, Cherryville, N. C.

My interest was first drawn to the infant and maternal death rate in North Carolina when I met with Dr. Parrott and others from adjoining counties in the fall of 1933. Dr. Parrott divided the state into several sections, he or Dr. Cooper met with each section and advised them of the status of our infant and maternal death rate as compared with that of other states of the Union. The health officer felt that our rate was distressingly high, that before some outsider came in, we, the general practitioners, had better acquaint ourselves with the situation and attempt to remedy it if possible. From these several sections someone was selected to meet with Drs. Parrott and Cooper at a later date, at a central point, to discuss the problem and attempt to come to some conclusion as to how it may be remedied.

Since being asked by Dr. Rhyne to present this paper, it has come to my knowledge that North Carolina is not the only territorial division that it perturbed by their maternal death rate. The New York Academy of Medicine has had a committee studying maternal mortality in New York for the three years of 1930-1932 inclusive, and in Great Britain the problem has been studied by Munro Kerr.

"Labor is a natural, normal, physiological function, yet thousands die in carrying it out and millions are made invalids for life. Some believe that labor is a pathogenic function, but this does not mean that every labor should be a surgical operation or call for interference."

Let us see where we stand, according to statistics, on infant mortality. The latest data that I have at hand is the "provisional" birth and infant death rates supplied by the United States Bureau of the Census for 1932. The states of Massachusetts, Texas, Utah, and South Dakota are not included. The following is the death rate per 1,000 live births for part of the states.

North Carolina	66.5	per	1,000	live	births
South Carolina	76.6	"	"	"	"
Virginia	67.6	"	"	"	"
Tennessee	68.0	"	"	"	"
New Mexico	113.6	"	"	"	"
Oregon	41.5	"	"	"	"
Average	59.9	"	"	"	"

It will be seen that I quote only six of the states. My thought is to see how we stand as compared with our neighboring states, and also with the state that has the highest rate and that which has the lowest rate. I derived the average for all of the states quoted in the census to compare with that of North Carolina.

The statistics show that the rate in North Carolina is lower than that of any of the bordering states; South Carolina being the highest with 76.6 deaths per 1,000, Tennessee next with 68.0, Virginia next with 67.6, and North Carolina lowest with 66.5. New Mexico ranks highest with a rate of 113.6 or 70% higher than North Carolina. Oregon ranks lowest with a rate of 41.5, which throws North Carolina 60% higher than this state. By comparison we find that the average for the United States registration area is 59.9 as compared with North Carolina with a rate of 66.5, or giving North Carolina a rate of 11% higher than that of the average of all of the states.

Now that we see how we stand in comparison with some of the other states let us look into our own causes of infant deaths to see if there is anything preventable. Before doing this, it is a source of satisfaction to notice that our death rate for 1932 and also the number of infant deaths were lower than for any previous year. The rate for 1931 was 73.0 per 1,000 live births.

Of the total number of deaths for children under one year of age, 5,173, 1,209 or 23.4% occurred under one day of age, and almost half, 47%, or 2,242, in the first two weeks. Of the 5,173 deaths occurring under one year of age, 2,705, or 52%, were caused by the group known as "diseases of early infancy." This group of diseases of early infancy is further divided into: congenital debility, 881 or 32%; premature birth, 1,468 or 54%; injury at birth, 194 or 7%, and other diseases peculiar to infancy, 162 or 5%.

What may be done, if anything, to lower our infant mortality? Much has been and is being done to lower the mortality of older infants and children, but for the study in this paper I expect to dwell mainly with those infants that we lose under two weeks of age. At present, it seems to me, that our chief hope lies in the reduction of those deaths due to infection and birth trauma. There is little hope that much can be done at present to reduce the mortality of that group in which death is due to congenital debility and allied conditions. However, some of the leading pediatricians feel it is not impossible that we may find nutrition plays a part in congenital debility.

Before I go into discussion let me remind you that this paper is by a general practitioner and not a pediatrician or obstetrician. So, please, bear this in mind when you hear my humble discussion of so important a matter as infant and maternal mortality.

Let us first consider infection, how it causes infant death and how it may be lowered. Infection in the mother, pyelitis, syphilis and gonorrhea may each cause premature labor. Hence we have our first problem, keeping this premature baby alive. This infection, especially syphilis, if untreated in the pregnant woman will be transferred to the child, thereby permitting a diseased child to come into the world. This child has a much poorer chance of survival than one that is not so infected. In a study of infant deaths in the Moscow Scientific Institute of Motherhood, it was found that "in the greater number of cases, clinically designated congenital debility, death actually resulted from septic conditions." A great number of these infants derive the infection from the attendants and environment rather than from the mother.

This brings me to the question of how this may be lowered. During the prenatal stage improvement of living conditions of pregnant women and instruction against late coitus will materially decrease the chance of infection. Proper treatment of gonorrhea and syphilis as well as nonspecific leukorrhea and pyelitis will also decrease the chance of infection. During the delivery proper, it is imperative that everything be as near aseptic as possible. Any physician doing general practice knows just what kind of dirty holes we get into sometimes. It is wise to tell all prospective mothers that it is absolutely necessary to have all linen and clothes to be used well laundered. They may be sterilized by wrapping in paper and heating in an oven, provided there is no other way of sterilization. In the majority of cases, there is no regular nurse but some neighbor or two or a grandmother. None of these assistants should be permitted to assist in any way unless their clothing is clean and they have washed in some antiseptic solution. Then the attending physician should scrub and use freshly boiled or sterilized gloves. It should not be as I heard one physician state, he always scrubs for delivery, but does it after the child is born. In my community there are several physicians that do not own or use rubber gloves at all. They just rinse off their hands and go on about the delivery. It is difficult to perceive, in this day of asepsis and antisepsis, an intelligent physician doing all kinds of work and not using freshly boiled or sterilized gloves. No wonder we get infection of babies as well as of mothers. Just think of it, a physician opening abscesses, treating erysipelas, syphilis, all kinds of acute contagious diseases, doing minor surgery and going in to see a woman in labor, rinsing his hands off with a little soap and water and then doing vaginal examinations. It is a wonder that half of our babies and four-fifths of our mothers do not get infected. I dare say that my community is not the only one in which such obstetrics is practiced. We may criticize the midwife as we like, but those that I have been called in to assist in difficult labors have gloves and lysol solution,

something that some of our physicians do not have. These same physicians that do not use gloves and do not scrub up, do not use sterile cord tie, but use any type of course cotton string, it makes no difference whether it comes from a flour sack or a fertilizer bag, neither do they use any preparation in the new-born's eyes, regardless of the law and the state providing it gratis.

To lower the death rate due to infection we have an abundance of work to do in an attempt to teach our ignorant patients the value of cleanliness, but at the same time I feel that we need to do as much or more in an attempt to remind our doctors that at present there is asepsis and antisepsis. I believe that it would be a good idea for some of our physicians to attend the lectures given for colored midwives so that they may learn something. A strict attempt to diagnose, thoroughly treat, and control all cases of gonorrhea and syphilis will materially reduce our mortality due to infection.

Injury at birth causes 7% of the deaths of infants that die in the first two weeks of life and doubtless a much greater per cent of those that die in the first two days. Furthermore, how many of that large group covered by congenital debility is actually a result of injury at birth? To my mind congenital debility may cover a multitude of sins.

Intracranial birth hemorrhage is the injury that is responsible for the largest part of deaths due to injury at birth. The sad part is that they are often not recognized at the time of birth. They are seen most often in prematures and in those infants that are subjected to a long and difficult labor, especially in those cases in which a solution of pituitrin is used to hasten delivery or to carry an abnormal presentation through. They are also frequently found in instrumentation and podalic versions. The hemorrhage may occur anywhere inside the skull, subdural hemorrhages are the most important. The symptoms of course depend entirely upon the size and location of the hemorrhage. The prognosis also depends on the size and location of the hemorrhage and the type of treatment instituted. As for treatment, prevention is the outstanding factor to consider. I believe that a large number of these injuries could be prevented if the attending physicians were less prone to interfere with normal labors as well as abnormal ones. There are cases in which it is necessary to perform surgical intervention as version and forceps delivery, but there are many times that the attendant has given a woman in labor pituitrin to hasten on delivery so that he may sleep, go to some entertainment, play golf or attend some social function. If a woman has confidence enough in a physician to engage him to attend her in that time of distress known as labor, he certainly should do all within his power to see that she comes through with a healthy living baby and not torn from stem to stern. I believe that the majority of physicians are too ready to give some oxytocic when it would be much better to wait for nature to do its part. To me it is nothing less than criminal to hasten on a normally progressing labor. I do not know when I have been so disgusted as one afternoon when a representa-

tive of a drug house attempted to sell me a preparation of thymus and pituitrin extract combined to be used in the early stages of labor. To hear him tell it, this was the only way for a woman to ever have a child anymore. Just go in, give a shot of his preparation, the shot would do all of the work, all the woman had to do was to lie there and let the baby be born. The shot would dilate the cervix, deliver the child unharmed, prevent lacerations or if one should accidentally happen would repair it, and the mother would be thankful to you forever. As an added inducement to get me to try some of this wonderful medicine, he would give me a beautiful birth certificate with each ampule so that the parents and child would have something by which they could remember me. When he had finished his tale I was of the opinion that the purported birth certificate would likely be the death certificate of a child and possibly of a mother also. I felt that it was a slam on what little intelligence and judgment I may have, to try to get me to try a preparation that the company had to offer a premium with in order to sell the product. It is my opinion that too many of these two by four drug houses are trying to tell the medical profession how to practice. No one is more willing to learn of a new and more efficient preparation to be used than I, but I do hate for every little squirt of a drug salesman to tell me how I should practice my profession. Pardon the diversion, I started to say something on the treatment of intracranial birth hemorrhages.

We said that prevention is the outstanding factor to consider, and should begin when possible by appropriate prenatal treatment. Every case of prolonged labor should be considered as a possible birth injury, especially intracranial hemorrhage and the attendant should govern himself accordingly. If a birth injury is immediately recognized the attendant should stimulate respiration by the use of a mixture of carbon dioxide and oxygen rather than by violent measures. Absolute rest, external heat and elevation of the head should be instituted. The increased intracranial pressure should be relieved, respiration maintained, fluid intake maintained and the child watched very closely.

Cyanosis, asphyxia, and narcosis are other pathological conditions met with in the new born which, if handled correctly, should have its influence on the death rate of infants. Cyanosis may be a symptom of hemorrhage; intracranial, intra-abdominal or pulmonary, it is a symptom of congenital heart disease and may be a symptom of pneumonia in the newborn. Correct treatment of course depends upon correct diagnosis but it is a problem of the obstetrician. In general, rest and gentle treatment are of prime importance. Rough and prolonged attempts at artificial respiration should be obsolete. Removal of mucus from the pharynx and trachea, inhalation of oxygen or oxygen and carbon dioxide, rest and quiet are most important. The same treatment and especially the oxygen and carbon dioxide are our best methods of combatting asphyxia. As for narcosis, prevention is the best treatment. Do not fill the laboring woman with morphine and barbiturates to the point where it is necessary to give

some oxytocic to produce uterine contractions and have delivered a narcotized as well as an injured child. We all hate to see a woman suffer with severe labor pains, but it is better to let her suffer a few pains than to run the chance of delivering a stillbirth, excessively narcotized or mortally wounded child. During my interneship, it was my pleasure and privilege to assist Dr. Norris Vaux, whom I consider an obstetrician of the first class, in a large number of deliveries and I have never seen him order any type of narcotic during labor, just a little gas or ether at the very end of the delivery.

Let us now turn our attention to the maternal death rate in our state. It is serious enough to lose so many of our new-born, but to lose so many of our mothers is a most serious and deplorable condition. These women are in the prime of life, at their heighth of usefulness to their home and country. They have many loved ones and attachments and in numerous cases are the backbone of a home and the livelihood of other dependents. They have spent years and money on education and cultivation of themselves to reach this point in life where they are loved, needed, and in some instances are probably indispensable. To have so many of these individuals literally snatched from our midst is indeed a catastrophe.

It is appalling to learn that in 1932, the last record that I have, we lost 560 mothers during labor. This gives us a rate of 7.2 per 1,000 live births. This however is better than for 1931 when we lost 640 with a rate of 8 per 1,000. We are still higher than the rate of 6.5 for the United States Registration Area.

Let us compare our rate with that of some of the other states of the union and other countries. For this comparison I will have to use the statistics for 1931, I do not have those for 1932. We have a rate of 7.2 as compared with Utah with a rate of 4.2, Virginia 7.5, South Carolina 10.2, Tennessee 7.4, Florida 10.4. In Sweden the rate was 3 and Denmark 2.5. It is noticed that North Carolina, Virginia and Tennessee have approximately the same rate. It is at least gratifying to learn that we do not have the highest rate in the United States.

As for the specific causes of deaths we find that puerperal albuminuria and eclampsia led the list with 185 deaths or with a rate of 2.38 mothers per 1,000 live births. Notice that this accounts for approximately one-third of the deaths. The second great cause was puerperal septicemia which took the lives of 80 of our mothers with a rate of 1.03. The third highest was other accidents of childbirth taking 79 with a rate of 1.01. The thing that is so discouraging is that 74% of the maternal deaths were due to albuminuria and eclampsia, septicemia, other accidents of childbirth and hemorrhage, a large majority of which may have been prevented.

Approximately one out of every three women that die in labor in North Carolina die from albuminuria and eclampsia. What per cent of these women could be saved? I feel that a very large number of these women could still be living if each of us did our part. The one factor that will aid in reducing the mortality due to this cause is education, re-education

of the physicians and education of the pregnant women by the physician. First, re-education of the physician as to the symptoms of pre-eclampsia and the necessity of a thorough study of the expectant mother as to general health, pelvic measurements, urinalysis, blood pressure and complete physical examination. I believe that a large number of our practicing physicians care little about the general physical condition of their prospective mothers and until we get prenatal study conscious, so to speak, how can we expect our patients to be so? I feel that it is just about as important to look after a pregnant woman before and after delivery as it is at the actual time of confinement. Once the general practitioner becomes aware of the high preventable mortality among pregnant women, interests himself in that he wishes to reduce it, then and only then we may be able to get somewhere with reducing our high rate. Our patients will gladly coöperate with us in all that we try to do if we will only inform them of our intentions. When I first started the practice of medicine I took labor cases as they came and believe me I ran into some terrible difficulties. During the first nine months of my practice I had a number of eclamptics, but since then I have had only two mild cases of toxemia with symptoms at the time of delivery and neither of these had convulsions. Why? I attribute it to only one factor. At the end of that nine months I made a rule to attend no labor case unless the patient had first made arrangements with me to look after her. I did this for two reasons, one selfish, the other for the patient's good. The selfish reason was that I wanted to make arrangements for pay for my services and not get caught with a toxic patient, perhaps lose her and get a lot of criticism in the community. The other was that I want my patients to get along well and with as little chance of loss of mother or child as possible. It was not easy at first to carry out my plan and I was criticized severely for not attending some labor cases that I was called on. Now that my patients understand my requirements they coöoperate exceedingly well with me. A large majority of my patients come to me in the first two months of pregnancy and return as requested until after the period of confinement. On the first visit I do a complete physical examination in all cases with which I am not already familiar. I give them several booklets obtained from the state on prenatal care, tell them of all of the symptoms of toxemia and that if they notice any one of them they are to return to my office at once with a specimen of urine. I also tell them when they are to return for future urinalysis and blood pressure readings. By this routine I have picked up a number of cases of early toxemia that by proper treatment responded and delivered without the slightest indication of seriousness. I am honest in my opinion that by this routine I have averted many serious conditions and probably deaths and am glad to say that I have yet to lose a mother or baby from eclampsia. And while speaking of it, I have made arrangements for and collected for many a labor case that would otherwise have gone unpaid if I had not required this prenatal work. I beseech all of you general practitioners to get prenatal conscious, inform

your patients of your intentions to try to be a better physician, educate them in the lines that they should be educated, take an interest in them, examine and study them conscientiously, find these toxemias early, treat them properly and I believe that by so doing we can reduce our mortality due to puerperal albuminuria and eclampsia to a minimum. Do not do like a friend practitioner does, or at least he told me that he had his patients to bring urine for examination but usually did the sink test on it, as they would know do difference. I realize they would not, but our mortality records will. If we can not be conscientious about our work let us not do it.

The second in the cause of deaths is puerperal septicemia. This took eighty of our mothers in 1932, and it is my opinion that this too can be reduced to a minimum. I know that we can not entirely eradicate it, but we surely can decrease it. That which I had to say about infection in infant mortality holds good here. We are now practicing medicine in a time of asepsis and antisepsis. When the expectant mother is coming for routine examinations inform her of the necessity of cleanliness through the pregnancy and especially in preparation for the delivery. Instruct her of the dangers of coitus late in pregnancy. If she has any type of infection, either local or general, treat it, and attempt to clear it up before she falls in labor. When the time comes to deliver her, scrub up well, use sterile gloves and copious amounts of some good antiseptic and do as few vaginal examinations as possible. Do not rupture the membranes prematurely, do not get in too big a hurry and give a shot of pituitrin, put on forceps or do a version, even if she insists on it as some do. All of these latter methods of hastening delivery not only endanger the life of the child but by causing lacerations and opening an avenue for the infection greatly increase the chance for septicemia to set up. Rather than staying around and trying to do something that would be of more harm than good it is better to do as one good doctor said, "When you are called to a woman in labor go see her, scrub yourself and her, make an examination and determine approximately at what time the child will be delivered, get your hat and coat, leave and let her labor for a while and come back in time to catch the baby as it is being born." As our old professor, Dr. B. C. Hirst, one said, masculine inactivity is indicated but is difficult to perform.

Other accidents of childbirth, third in the rate of death, took 79 of our mothers in 1932, just one less than puerperal septicemia. This does not include ectopic gestation, puerperal hemorrhage, phlegmasia alba dolens, embolus and sudden death. Who is responsible for these other accidents of childbirth? Here again I believe that we general practitioners and some of the obstetricians are responsible. The world as a whole is studying the cause of maternal mortality. People in general are awakening to the fact that it is not best to hasten delivery of children. According to the reports of the study of this question in Great Britan by Munro Kerr and in New York City, the general practitioner is coming in for a great condemnation. These studies seem to prove that the physician does more harm than good

for the confined women and in England they are reverting to midwifery. I feel that here again we could reduce our mortality if there was not such a widespread use of pituitrin routinely, as well as routine use of forceps and version for a normally or even slowly progressing labor. I know there are distinct, honest, and concise indications for the use of all these artificial assistants to delivery, and within these indications lies safety. Practically all of us have used pituitrin, have ruptured membranes, done versions and applied forceps even probably under hazardous conditions, I know I have, but next time perhaps we will be a little slower to act when we may feel that it is necessary. I have condemned us general practitioners so much throughout the whole of this paper that I am hesitant to do so further. But when I think of using pituitrin I remember what Dr. Hirst said, never use pituitrin in a primapara and only use it in a multipara when the head is engaged and the cervix completely dilated.

Before I change my attack from the doctor to the general public in an attempt to lower our maternal mortality I would like to take time to quote Dr. Joseph B. DeLee. "What shall we do in obstetrics? Shall we build the art up to a high plane, one on a level, or above the level of surgery, or shall we lower it down to the level of the untaught practitioner? It has been proved that a clever, experienced obstetrician can make a serious attempt to improve the conditions in labor and the results of labor by judicious interference in a normal process. He can actually improve on nature. It has, on the other hand, been proved time and time again, indeed, is being shown continuously, that this practice in the hands of the average practitioner and surgeon is fraught with dangers to both mother and child, and here we have the fundamental cause of this notoriously high mortality in child-birth. What is the answer? It is simple. We must teach two kinds of obstetrics: first, that fitted to the standards of the men that are doing the heavy work in obstetrics, and second, we must develop a large group of real specialists. The latter will show the way to the promised land when all women will have the benefits of all the advances of our science, during which time the rank and file are giving their patients solid, so-called conservative practice which has been proved safe, and, for the time being, satisfactory. If we can teach the rank and file to perform intelligent expectancy in labor we will have gone a good distance toward the latter goal." And again to quote Dr. DeLee as to his comment on the report of Kerr in Britain and the report of the committee on the study of maternal mortality in New York City. "Here the deduction has been followed by action and the trend back to the midwife has actually begun. MIRABIL DICTU. What a slam. For the last 50 years we have been laboring to elevate the science and art of obstetrics to the level, or above the level of surgery, and, having got a large part of the practice away from the midwife, we have bungled the work so cruelly that we are told to 'go to the midwife thou botchard, consider her ways and be wise.' "

Certainly there are other highlights in the reduction of maternal mortality than those mentioned in this paper; (1) eradication of disease,

(2) improved living conditions, (3) better nursing care, (4) conservative obstetrics, (5) education of the general public, and (6) avoidance of short cuts; they are: better undergraduate education in obstetrics, post graduate study, more trained obstetricians, more maternities, better maternities, and fewer therapeutic abortions.

That brings me to my last study, that of abortion. Abortions with and without septic conditions caused the death of 53 women in the past year. What caused the abortions? I understand that venereal diseases are on the increase. I believe it is estimated that there are 100,000 cases of syphilis in North Carolina and only 10% of these are receiving treatment. It is difficult to estimate the number of abortions and still-births that occur in North Carolina due to this one cause. I feel that it is time for some one to start a war on venereal diseases and the spread of them. Doubtless many of these abortions are self-induced. In this country abortions are criminal procedures while they are being done in Russia for social reasons. Should we start a war on abortionists also or do like Russia? What effect has the modern types of contraceptives on our mortality? Is it possible for there to be a pregnancy following the use of the vaginal jellies and that the jellies so lower the vitality of the fetus that in the second or third month it dies, the woman miscarries, becomes infected and dies? Some of our leading obstetricians and gynecologists are propounding such a theory if it is not an actual fact. These are questions that we should be seriously considering, I personally could not answer them with facts.

It may seem that I have been prone to criticize our physicians here in North Carolina, maybe without cause, and too severely. But I feel that it is time for us to awaken to the facts of the case and see just where we stand. I believe, and have heard some of the leading physicians in the state say that as a whole we have a grade of practicing physicians in North Carolina that will measure up with "docs" from any state in the Union or elsewhere as far as that is concerned. I hope that I have offended none by my remarks and if I have you have my most sincere apologies. If I have as much as put you to thinking about our infant and maternal mortality and by so doing will precipitate some discussion among you I feel that my time has been well spent for boring you through this paper.

BIBLIOGRAPHY

Annual Report Bureau Vital Statistics of State Board of Health 1932.
Obstetrics—Gynecology—Practical Medicine Series 1933.
The Health Bulletin December 1933, Vol. XLVIII No. 12.

FOREST M. HOUSER, A.B., M.D.,
Cherryville, N. C.

Since the completion of this paper the central meeting mentioned in the early part of the paper has been held. The points this group were in favor of are: (1) we must educate the public on the necessity of prenatal care, (2) educate the proper type of midwives to handle those

cases who could not afford a physician, (3) get the general practitioners prenatal conscious, (4) establish prenatal clinics, (5) rear better mothers by starting with high school girls and (6) arouse the physicians of our state with the hope that they will cease to interfere with labor until it is an absolute necessity. They also drew up and adopted for publication by the State Board of Health an outline of "General Principles of Prenatal and Postnatal Care" which is as follows:

COMMITTEE REPORT AND RECOMMENDATIONS

General Principles of Prenatal Care

Every Woman Should Consult a Physician as Soon as She Thinks Herself Pregnant

I. A. General Physical Examination to be Made Before the Fourth Month of Pregnancy.

1. History of previous pregnancies and diseases.
2. General examination.
   1. Foci of infection.
   2. Heart and lungs.
   3. Abdomen.
   4. Extremities.
3. Blood examination, to include Wasserman in all cases, hemoglobin in all cases, blood count desirable.

B. Pelvic Examination.

1. Pelvic measurements to be taken before the fifth month.
2. Vaginal examination to be made before the fifth month.

II. Routine Visits to Physicians.

1. Should visit physician once a month for first five months and twice a month thereafter, at which time following examinations should be made:
   1. Urinalyses.
      Specific gravity.
      Albumen.
      Sugar.
      Microscopic examination desirable.
   2. Blood pressure determination.
   3. Weight—Gain of over 24 pounds not desirable.
      Any rapid gain to be looked upon with suspicion.
   4. Estimation of height of uterus.
   5. Determination of fetal heart sounds.
   6. Diagnosis of presentation and position of fetus.

III. General Instructions.

1. Rest—One hour after mid-day meal, two hours desirable.
2. Exercise—Walk at least one mile daily.
3. Diet—General well-balanced nourishing diet with abundance of milk, vegetables, fruit and fruit juices.
4. Medication—No medicines (laxatives included) shall be taken except upon instructions of the physician.

5. Either supply or have patient write for various pamphlets and literature issued by the State Board of Health and the Children's Bureau of the United States Department of Labor.

IV. *Special Instructions.*

Report at once to your physician if any of the following symptoms appear:

Headache, dizziness, spots before the eyes, swelling of the feet and ankles or face, frequent or painful urination, bleeding or abdominal pain.

POSTNATAL CARE

I. Physician should visit patient not later than third day after labor, at which time patient should be advised regarding:
   A. Nursing or feeding baby.
   B. Posture and exercises to prevent uterine displacements.
   C. When to get out of bed and resume usual activities.

II. Six weeks after delivery patient should report to physician for vaginal examination to determine and correct lacerations and displacements.

III. Baby should be examined at this time for weight and dietary corrections unless under care of pediatrician.

Signed:

Harry H. Johnson, *Chairman,*
J. Street Brewer,
Forest M. Houser,
Thos. Leslie Lee.

. . . Following announcements by Secretary McBrayer the meeting adjourned at eleven fifty-eight o'clock. . .

FOURTH GENERAL SESSION

Wednesday Evening, May 2, 1934

The Fourth General Session of the Medical Society of the State of North Carolina convened in the Ball Room at eight-fifty-six o'clock, President Manning presiding.

President Manning: The first matter in order is the election of a member of the Nurses Board of Examiners.

Dr. DeWitt Kluttz (Washington): Mr. President, I would like to nominate Dr. R. B. Davis of Greensboro. He is a man that has had experience with the Hospital Association and should know something about that.

. . . The nomination received a second. . .

Dr. Highsmith: I would like to nominate the present incumbent, Dr. C. H. Peete.

. . . The nomination was seconded. . .

DR. I. T. MANN (High Point): Mr. President, I would like to nominate Dr. H. B. Hiatt of High Point for that position.

. . . The nomination was seconded. . .

PRESIDENT MANNING: I will ask the Secretary to announce the nominees for the position on the Nurses Board of Examiners.

SECRETARY MCBRAYER: Dr. R. B. Davis, Dr. C. H. Peete, and Dr. H. B. Hiatt.

PRESIDENT MANNING: I will appoint Dr. Caviness and Dr. Carrington as tellers.

Prepare your ballots, gentlemen.

. . . The ballots were distributed and collected and counted by the tellers. . .

PRESIDENT MANNING: I will ask the Secretary to announce the vote.

SECRETARY MCBRAYER: Dr. R. B. Davis, ten; Dr. C. H. Pette, fourteen; Dr. H. B. Hiatt, three; total, twenty-seven; necessary for a choice, fourteen. Dr. C. H. Peete received fourteen, which is a majority of all votes cast.

DR. I. T. MANN (High Point): Mr. President, as Dr. Peete is to repeat I move that we make that unanimous.

. . . Seconded and carried. . .

PRESIDENT MANNING: We will now ask for the report from the House of Delegates.

SECRETARY MCBRAYER: Just before we go into that I would like to say that we have a report from the Board of Medical Examiners and a few others things that they asked to be read by title and printed in the Transactions.

DR. MANNING: Hearing no objection, it is so ordered.

DR. BENJ. J. LAWRENCE: Mr. President and Members of the North Carolina State Medical Society:

As Secretary of your Board of Examiners I wish to submit the following brief report or resume of our year's work.

Our first General Session for examination of candidates was held in Raleigh, N. C., at the Sir Walter Hotel, June 19, 20, 21, 22, and 23, 1933. The full membership of your Board of Examiners was present for the meeting. Twenty-seven men were licensed by endorsement of their credentials. One hundred and eleven took the examinations; of this total forty-six took the first two years, thirty-two took the third and fourth years and thirty-three took the entire four-year examinations. Attached to and forming a part of this report are copies of the examinations given last June. At the close of the examinations Dr. William H. Smith of Goldsboro, North Carolina, was elected president to succeed Dr. K. G. Averitt of Fayetteville, North Carolina. At a subsequent meeting of the

Board of Examiners on July 24th, sixty-five applicants were licensed by examination. It was found that no applicant had failed to pass the examinations.

On December 2, 1933, at a special meeting of the Board, twenty-three candidates were licensed by endorsement of their credentials.

We have had a delightful and harmonious time together. Each member of the Board is eager and anxious to do his full portion and to share promptly the responsibility vested in him.

Respectfully submitted,

BENJ. J. LAWRENCE, M.D., F.A.C.S.,

Secretary, N. C. State Board of Medical Examiners.

NORTH CAROLINA STATE BOARD OF MEDICAL EXAMINERS—1933

ANATOMY AND EMBRYOLOGY

BY HAMILTON W. MCKAY, M.D.
Raleigh, N. C.

1. (a) Name the sutures at the vertex of the skull.
   (b) What bones do they unite?
2. Enumerate the Important Differences between the male and female pelvis.
3. Describe the external anal sphincter.
4. Name the arteries that unite to form the Basiler Artery.
5. (a) Locate the Foramen Ovule.
   (b) State its function.
6. Name the nerves of the eyeball.
7. (a) Name the important lobes of the cerebrum.
   (b) Give the fissues separating these lobes.
8. Give in order from without inward structures cut in performing the operation of tracheotomy.
9. Give brief description of the pyloric orifice of the stomach.
10. (a) Make topographical sketch of the abdomen, dividing it into regions.
    (b) Write (or print) the name of each region on the sketch.

EXTRA QUESTIONS

1. Set forth briefly a few facts about the Wolffian Bodies.
2. Give the approximate time (in months) of eruption of the temporary teeth.

NOTE: Answer questions 8, 9, and 10, and any other seven questions, only ten questions to be answered. I call your attention to the desirability of brevity combined with judgment in answering the above questions.

PHYSIOLOGY, CHEMISTRY, AND HYGIENE

BY DR. JAMES W. VERNON
Morganton, N. C.

ANSWER ANY TEN QUESTIONS

1. Briefly explain the mechanism of blood coagulation.
2. Name the more important constituents of bile and give their physiological function.

3. What are the physiological results of thyroid deficiency?
4. How is the temperature of the body regulated?
5. Discuss calcium and phosphorus in teeth and bone formation; and state how calcium and phosphorus deficiency may be restored to normal balance in the blood.
6. Define alkali reserve.
7. Define:
   (a) Enzyme.
   (b) Vitamin.
   (c) Metabolism.
8. Define an element; a compound; an alkaloid. What is a necessary element in organic compounds?
9. Discuss the value of active immunization in the acute infectious diseases, giving examples.
10. Give the most frequent cause of preventable blindness and how it may be controlled.
11. Discuss the prevention and control of pellagra.
12. Discuss milk in the transmission of disease.
13. State your understanding of the meaning and importance of mental hygiene.

PATHOLOGY, BACTERIOLOGY, AND HISTOLOGY

By Benj. J. Lawrence, M.D.
Raleigh, N. C.

1. (a) What is an infarct?
   (b) Mention the most common underlying factors.
2. (a) Classify Tumors.
   (b) Which do you consider the most malignant?
3. (a) What is the most common cause of pain in the adbomen? (Especially in children or young adults?)
   (b) Give a very brief description of the pathology of the acute stage of the same.
4. Classify Meningitis.
   (a) According to duration of time.
   (b) According to involvement.
   (c) According to cause.
   (d) Mention organism causing Non-Purulent Meningitis.
   (e) Mention organism causing Purulent Meningitis.
5. (a) Describe the life cycle of the Malarial Parasite. (Credit for intelligent drawing.)
   (b) How transmitted?
   (c) Name types of Malaria.
   (d) What is the treatment?
6. Describe the Histology of the various types of Muscles. (credit for drawing.)

Answer Only Five

PHARMACOLOGY, MATERIA MEDICA, AND THERAPEUTICS

By K. G. Averitt, M.D.
Cedar Creek, Fayetteville, R. 5, N. C.

1. Define these terms:
   (1) Pharmacology.
   (2) Materia Medica.
   (3) Therapeutics.
   (4) Pharmacopoeia.
   (5) Dispensatory.
   (6) Toxicology.
   (7) Alkaloid.
   (8) Glucoside.
   (9) Synergist.
   (10) Antagonist.
2. Give the source and Physiological action of Opium. Name its most important alkaloids, and the average dose of each.
3. Give the official name of Tartar Emetic, its physiological action and average dose.
4. Discuss briefly the physiological action and therapeutic uses of Pituitary gland preparations.
5. Give the physiological action of Ergot, mention its chief therapeutic use, and name the average dose of the Fluid Extract.
6. Give the average dose of each of the following drugs:
   (1) Strychnine Sulphate.
   (2) Atropine Sulphate.
   (3) Nitroglycerin.
   (4) Pilocarpine Hydrochloride.
   (5) Phenobarbital.
   (6) Tincture of Aconite.
   (7) Tincture of Digitalis.
   (8) Sodium Salicylate.
   (9) Acitanilid.
   (10) Acetphenetidin.
7. How does an Antitoxin differ from a Vaccine?
8. Name four preparations of Mercury and state dose of each.
9. Give the composition of Compound Jalap Powder, Seidlitz Powder, Dover's Powder.
10. Using the correct Latin and proper case for the name of each drug, write a prescription containing Strychnine Sulphate, Arsenic, Quinine Sulphate, and Reduced Iron, to be made into thirty capsules, and one capsule to be taken three times a day after meals.

OBSTETRICS AND GYNECOLOGY

By F. Webb Griffith, M.D.
Asheville, N. C.

OBSTETRICS

Answer Five and Only Five Questions

1. Give diagnosis and treatment of Postpartum Haemorrhage.
2. Discuss use of Pituitrin in Obstetrics.
3. Give indications and contra-indications to Caesarean Section.

4. Describe care of patient during Puerperium.
5. Give care of New-born Child from moment of birth to end of 1st week.
6. Define:
   (a) Ballottement.
   (b) Chadwick's sign.
   (c) Hegar's sign.
   (d) Episiotomy.
   (e) Hyperemesis gravidarum.
   (f) Accouchement Force.
   (g) Baudelocque's diameter.
   (h) Dystocia.

GYNECOLOGY

Answer Five and Only Five Questions

1. Give treatment of Gonorrhael Salpingitis.
2. Give etiology, source, and treatment of Leucorrhea.
3. Give symptoms and treatment of:
   (a) Carcinoma of Body of Uterus.
   (b) Carcinoma of Cervix.
4. Give signs and symptoms of Ectopic Pregnancy.
5. Tell what you know about Adeno-myoma of Uterus.
6. Define:
   (a) Menorrhagia.
   (b) Metrorrhagia.
   (c) Dysmenorrhea.
   (d) Dyspareunia.
   (e) Hematokolpos.
   (f) Endometritis.

SURGERY

By Ben F. Royal, M.D.
Morehead City, N. C.

1. Discuss the treatment of a small basal cell Epithelioma of six months duration on the side of the nose in a man of 50.
2. Give differential diagnosis of pain in the right liliac fossa in a woman of 25.
3. Discuss the management of a T fracture of the lower end of the humerus in a child of six.
4. How would you treat a carbuncle of the back of the neck of five days duration in a man of 50?
5. How would you manage:
   (a) Bleeding from a tonsil fossa 5 days after tonsil removal?
   (b) Severe nose bleed?
6. Describe the management of a compound fracture of both bones of the leg, four inches above the ankle, in an adult.
7. An adult is brought to the hospital from an automobile accident with multiple and contusions about the head and face unconscious. Outline management of the case.
8. Discuss the significance of a non-inflammatory "lump" in the breast of a woman of 25.
9. Discuss, in the order of their appearance, the symptoms and signs in a typical case of acute appendicitis.

10. Discuss the most common complications or distressing symptoms following laparotomy and give means of their preventions. If they appear despite preventive measures, outline treatment for their alleviation.
11. Discuss Avertin anesthesia.

Answer Any Ten Questions

PRACTICE OF MEDICINE AND PEDIATRICS

By Wm. H. Smith, M.D.
Goldsboro, N. C.

1. In a child suspected of having tuberculosis what would be your procedure in determining the diagnosis?
2. Differentiate between: typhoid fever, typhus fever, and undulant fever.
3. Outline your treatment for cardiac decompensation caused by chronic valvular heart disease.
4. How woulld you compute the insulin dosage for diabetes mellitus?
5. Give the characteristic symptoms and findings in cerebro spinal meningitis. What is the specific treatment?
6. Give the symptoms and findings of acute poliomyelitis.
7. Tabulate 6 differential points between nephrosis and arterio sclerotic nephritis.
8. With a patient that complains, of burning and pain in the upper abdomen coming on from 1 to 2 hours after meals, state the procedure necessary to determine the diagnosis. State what you would expect the procedures to show in what is the most common cause of this symptom.
9. Give the essential points in the diagnosis of tularemia.
10. With a young man who has pain in right disc region, what two conditions would you most likely suspect? State what further examinations you would make to determine the diagnosis.

LIST OF LICENTIATES FOR JUNE, 1933

Lewis Gordon Sinclair, Norwood, N. C.
Milton Edward Block, 807 Summitt Ave., Greensboro, N. C.
Ralph Eli Lore, Lincolnton, N. C.
Hector Romylus Sinnette, Lincoln Hospital, Durham, N. C. Col.
Malvin Proctor, Lincoln Hospital, Durham, N. C. Col.
Julius Charles Hines, 217 E. Gale St., Edenton, N. C. Col.
Harry H. Summerlin, Rock Hill, S. C.
Opie Norris Smith, 632 N. Elm St., Greensboro, N. C.
Horton Camp, Wassict State School, Wassict, New York, N. Y.
Thomas Alexander Hathcock, Jr., Norwood, N. C.
Herman Murlon Brickhouse, Creswell, N. C.
Samuel Eason Way, Beaufort, N. C.
George Clyde Shinn, Concord, N. C.
Walter Raphael Wiley, 1202 Broad St., Durham, N. C.
John Moses Sartin, Statesville, N. C.
Robert Mitchell Oliver, Jr., Dillon, S. C.
Noel Walker Robbins, Duke Hospital, Durham, N. C.
Ogder Carr Burton, Mt. Gilead, N. C.
William Stringfield Sloan, Waynesville, N. C.
William Henry Flyth, Laurel Hill, N. C.
William L. Holton, Duke Hospital, Durham, N. C.

Roy Foster Roberts, Riverside Heights, Asheville, N. C.
Rachel D. Davis, Womans' College Hospital, Philadelphia, Pa.
Henry Clay Harrell, Ellenboro, N. C.
Wyman Plato Starling, Roseboro, N. C.
Frank Hughes Avant, 305 Pine St., Durham, N. C. Col.
Hubert Hudson Burroughs, Bethel, N. C.
William Stantley Wall, Enfield, N. C.
Shelbe William Vance, Pineola, N. C.
John Faulkner Rainey, Sharon, S. C.
Thomas David Tyson, Jr., Mebane, N. C.
Herbert Augustus Davidson, Box 1036 Highland Springs, Va.
Alban Papineau, Sanitorium, N. C.
Barney Lilan Woodard, Kenly, N. C.
Ralph B. Garrison, Glen Alpine, N. C.
Jackson Townwend Ramsaur, Kings Mountain, N. C.
Isaac Emerson Harris, Jr., Creedmoor, N. C.
Bennie Booker Dalton, Red Springs, N. C.
Albert Earl Barnhardt, Concord, N. C.
Frederick Philips Brooks, Chapel Hill, N. C., Kinston, N. C.
Walter Weddle Vaughan, Elm City, N. C.
Otis Hunter Jones, Wake Forest, N. C.
Sam Gilmore Saunders, 108 North Front St., Wilmington, N. C.
MacLean Bacon Leath, Jr., 300 Fayetteville Rd., Rockingham, N. C.
Charles Whitfield Taylor, Grifton, N. C.
John Lovejoy, Duke Hospital, Durham, N. C.
Grant Lester Donnelly, 409 Cameron Ave., Chapel Hill, N. C.
William Alonzo Hoover, Crouse, N. C.
William Carey Hedgpeth, Lumberton, N. C.
Ernest Vick Moore, Shelby, N. C.
Albert Derwin Cooper, Duke Hospital, Durham, N. C.
Charles Spurgeon Duncan, Spruce Pines, N. C.
Haskell Wright Fox, Jr., Troutman, N. C.
George Aubrey Hawes, Conway, S. C.
Robert Boone Outland, Rich Square, N. C.
Elbert A. MacMillan, Thomasville, N. C.
Cy Kellie Lynn, Hickory, N. C.
Louten Rhodes Hedgpeth, Lumberton, N. C.
William A. Fritz, 333 10th Ave., Hickory, N. C.
Glenn G. Perry, Thomasville, N. C.
Raymond W. Reeves, Parkersburg, N. C.
Jesse Walton Kitchin, Horse Shoe, N. C.
Amos Neill Johnson, Garland, N. C.
William Samuel Griggs, Jr., Baltimore City Hospital, Baltimore, Md.
Felda Hightower, Wadesboro, N. C.
Percy R. Crane, 157 Clinton St,. Brooklyn, N. Y.
W. Randolph Angel, 344 Marlborough St., Boston, Mass.
John C. Wieters, Cherokee, N. C.
B. G. Lawrence, Highland Hospital, Asheville, N. C.
Norman Oliver Benson, Lumberton, N. C.
Ransom Bryant Hare, Jr., 220 N. 2nd St., Wilmington, N. C.
George Curtis Crump, 36 Grove St., Asheville, N. C.
Samuel Macon Carrington, 5224 St. Antonie St., Detroit, Mich. (Home address, Stovall, N. C.)
Fred C. Turley, 1101 N. Queen St., Kinston, N. C.

David E. Quinn, Jr., Veterans Administration, Oteen, N. C.
Hillis L. Seay, Mecklenburg Sanitorium, Huntersville, N. C.
Paul Wm. Johnson, 812 3rd St., Durham, N. C.
Robert F. Thomas, Route No. 12, Sevierville, Tenn.
Charles W. Gaskins, Baptist Memorial Hospital, Memphis, Tenn.
Randolph Jones, Jr., Duke University, Durham, N. C.
Clarence Lee Guyton, Jr., Monroe, N. C.
Robert H. Brown, 4601 Chester Ave., Philadelphia, Pa., and Andrews, N. C.
Nathinal H. Matross, Oteen, N. C.
Charles S. Drummond, 610 Miller St., Winston-Salem, N. C.
Ethel May Brownsberger, 312 N. Boyle Ave., Los Angeles, Calif.
Ralph L. Fike, Spartanburg General Hospital, Spartanburg, S. C.
George C. Allen, Troy, N. C.
Boisey Otha Barnes, 613 E. Green St., Wilson, N. C. Col.
William D. Hall, Roper Hospital, Charleston, S. C.
A. H. Stephens, James Walker Memorial Hospital, Wilmington, N. C.
J. C. Weeks, Jr., James Walker Memorial Hospital, Wilmington, and Manteo, N. C.
Walter W. Miles, Champion, N. C.

CANDIDATES LICENSED BY RECIPROCITY DECEMBER 2, 1933

No. 4623—Dr. Richard N. Stelling, New York Polyclinic, N. Y.
No. 4624—Dr. George Martin Leiby, Mars Hill, N. C.
No. 4625—Dr. Bob Lewis Fields, Earl Court, Norfolk, Va.
No. 4626—Dr. Geo. Thomas Alexander, Thomasville, N. C.
No. 4627—Dr. Henry Harrison Briggs, Episcopal Hospital, Washington, D. C.
No. 4628—Dr. Forrest E. Bliss, Mountain Sanitorium, Fletcher, N. C.
No. 4629—Dr. Samuel B. McPheeters, Medical Arts Bldg., Charlotte, N. C.
No. 4630—Dr. Jean Davidson Craven, (F) Duke Hospital, Durham, N. C.
No. 4631—Dr. Madge Baker Gaskin, (F) Albemarle, N. C.
No. 4632—Dr. Hatcher A. Day (Col.) 1301 Fayetteville St., Durham, N. C.
No. 4633—Dr. Saul L. Avner, 1002 E. 33rd St., Savannah, Ga.
No. 4634—Dr. Jackson F. Woods, Ninety Six, S. C.
No. 4635—Dr. Milton B. Clayton, 303 E. 20th St., New York Post Graduate Hospital, N. Y.
No. 4636—Dr. Herbert W. Knight, Bostic, N. C., R. 1.
No. 4637—Dr. Charles Solms, Franklin, N. C.
No. 4638—Dr. William Rankin Summers, Goodson, Mo.
No. 4639—Dr. Charles E. Ballard, Easley, S. C.
No. 4640—Dr. Walter Royle Johnson, Asheville, N. C.
No. 4641—Dr. William McCleery Junkin, Murphy, N. C.
No. 4642—Dr. Raymond S. Crispell, Duke Hospital, Durham, N. C.
No. 4643—Dr. Robert Burke Suitt, Asheville, N. C.
No. 4644—Dr. Mercer Huckabee Bailey, Elizabeth City, N. C.

GROUP HOSPITAL INSURANCE

Some wider base for financial support of hospitals is desirable. This can be obtained by group hospital insurance. This increases the income of hospitals, decreases the drain upon patients, and by relieving the patient of hospital bills leaves something with which to pay the doctors.

The plans in general fall into the following classes:

1. A private association for each hospital. In a city with several hospitals, this means several competing groups and cliques. It is sure to

result in the kind of commercialism that causes oil companies to dot the streets with competitive outlets.

2. Hospital insurance by commercial insurance companies. Aside from the probability of higher charges for profit, this kind of insurance is out of control of the profession and of the hospitals. It would eventually lead to the bidding of one hospital against another for lower priced service. Soon an insurance feature would also be added giving professional services. This would finally tend towards the care of the insured by salaried physicians employed by the insurance company with state medicine in the offing.

3. Mutual joint association including all hospitals in a given city. This would seem a satisfactory arrangement in all respects except in taking care of patients from other communities.

4. A state-wide mutual association formed by all the hospitals of the state. This would allow patients to go to any hospital desired, and would be free from the elements of competition and commercialism. It should be controlled by the hospitals and the insured. It should be independent of commercial companies and foundations.

Hospital insurance should not include professional services. The inclusion of "professional services" could lead too easily to group medical practice controlled by lay boards of hospitals.

This committee recommends the type of association described in paragraph 4 as best meeting the needs of the hospitals, the physicians, and the people.

Addison G. Brenizer,
Geo. L. Carrington,
President Hospital Association.

REPORT OF COUNCILLOR OF FIRST DISTRICT

All the counties in the First District are very small; instead of having county meetings we find it more practical to have all the counties come together in district meetings. Of these we have had three meetings, two last fall, held at Gatesville and Elizabeth City, at which latter meeting Dr. McCain, our incoming state president, was the guest speaker.

The meeting this spring was held at Edenton. Dr. Shands of Duke University was the guest speaker. The meetings were well attended, papers of high order being presented. The social parts of the meeting were much enjoyed. The meetings in every way were very helpful to the profession. The doctors of the First District work in harmony. Socialized medicine has not given them any grave concern as yet.

There is general dissatisfaction in the district about the manner in which the Industrial Commission is arbitrarily cutting our fees. We feel that the State Society should take some very definite and decided stand in the matter and do it now.

Dr. C. B. Williams, *Councillor.*

REPORT OF COUNCILLOR OF SECOND DISTRICT

April 30, 1934

Mr. Chairman:

We have in hand my report as Councillor of Second District for year 1933-34.

As you all know, the Second District embraces the counties of Beaufort, Carteret, Craven, Hyde, Lenoir, Martin, Tyrrell, Pitt, Pamlico.

We have had many county society meetings, some counties meeting regularly every month, others at less frequent periods.

We have had two district meetings, one at Williamston and one at Kinston. Both have been well attended and a good program was presented. The next meeting will be in Greenville this fall.

We want to report everything peaceful and happy in the Second District. We would like to see every county having a regular monthly meeting the year round and every white doctor a member of the State Society.

Respectfully,

K. B. Pace, *Councillor Second District.*

REPORT OF COUNCILLOR OF FOURTH DISTRICT

Mr. President and Members of the House of Delegates:

Representing the Fourth District, I will say that we have quarterly district meetings where excellent programs are presented and the attendance is good. The assembly hour is 6:30 P.M. when dinner is served and after an enjoyable social hour the program is presented.

The majority of the component societies meet monthly. The papers are of a high order and the attendance is good. Each society visited was urged to secure a 100% membership for the ensuing year.

Organized medicine is on the offensive in the Fourth District.

C. F. Strosnider, *Councillor Fourth District.*

REPORT OF COUNCILLOR OF FIFTH DISTRICT

To the House of Delegates, North Carolina Medical Society:

Glad to report that organized medicine is gaining ground in the Fifth District. The Fifth District Medical Society meets twice each year with good attendance and interesting programs. The ten counties in the district have an active organized society.

One member in the district was persecuted by a damage suit, but through the efforts of organized medicine the suit was thrown out of court before reaching the jury. This suit was the result of a thoughtless remark by a member of organized medicine. I would like to ask that we all be most careful and be certain of the facts before we criticize the work of our fellows and then not do it.

Harmony and good-will prevail throughout the district in so far as I know.

A. B. Holmes, *Councillor Fifth District.*

REPORT OF COUNCILLOR OF SEVENTH DISTRICT

The doctors in the Seventh District are working in harmony. All untoward relationships in the county medical societies have been cleared.

Out of sixteen law suits against doctors in the district, the doctors won the suits in every case.

The causes of these suits have been: (a) difficulties about bills, (b) unguarded talk on the part of doctors, and (c) avidity on the part of lawyers.

The doctors in the district have taken little or no interest in the questions of guarding their own economic and political and legal protection. They are, of a necessity, more interested in the pursuit of their personal practices.

The district meeting was held in October, 1933, at Monroe, N. C.

The young men of the district were requested and complied in carrying out an excellent program of papers and clinics.

The library of the Mecklenburg County Medical Society still remains at the disposal of the doctors of the district.

ADDISON G. BRENIZER, M.D., *Councillor.*

REPORT OF COUNCILLOR OF NINTH DISTRICT

The Ninth District is in very good condition. Great effort has been made to get all the counties that are not well organized to organize, and this has progresed in a very satisfactory way. In some counties there is a hundred per cent membership. In other counties it is not so good. We hope, however, that with the improvement in times every doctor will realize that membership in his county and state society is highly important.

The death of our District Councillor, Dr. M. R. Adams of Statesville, has been a great loss. Elsewhere in the Transactions will be recorded tributes from various sources. In his private and professional life Dr. Adams exemplified the finest traditions of medicine and medical men.

For the past twelve years the Ninth District Society has tried many plans for improving the meetings. The next meeting, which will be held Thursday, September 27, will be the culmination of an effort of twelve years to work out the best plan for holding meetings and making them not only instructive but also entertaining to the members and promoting the welfare of the medical profession, and at the same time advancing the cause and the interest of organized medicine.

We have planned the place of meeting seven years in advance with a rotation of officers which should enable the meetings to improve each year and at the same time not throw too great a burden upon any one individual.

As a unit of the State Medical Society the district society can do much to help out in many ways and this the Ninth District Society is endeavoring to do.

J. W. DAVIS, M.D., Statesville.

REPORT OF COUNCILLOR OF TENTH DISTRICT

Conditions in the Tenth District are moving along in a very satisfactory way. Two meetings of our society have been held during the year; one at Waynesville and one at Burnsville. At the former session, Waynesville, we were honored by the presence of President Manning, Dr. McBrayer, and Dr. Parrott. The gathering at Burnsville was also well attended and the papers most interesting.

We have annexed Avery and Mitchell Counties, giving 16 counties in the Tenth District.

The most outstanding event which has taken place in our section was the organization of a Sanitary District composed of Haywood, Jackson, and Swain Counties, under one health officer and his assistant. It is hoped that other districts will be similarly organized.

The next district medical society meeting will be held at Marion on May 16. A splendid program has been arranged and a general invitation is extended to all members of the State Society to be present.

Officers for the coming year as follows: President, A. C. McCall, Asheville; secretary, R. J. McCracken, Waynesville; councillor, Joseph B. Greene, Asheville.

REPORT OF DELEGATES TO AMERICAN MEDICAL ASSOCIATION

The past few years have been very trying ones for the medical profession as well as for all other classes of our country's citizenship, and the problems confronting it have been many and varied. Nowhere can one see the many sided aspect of these problems so well as in their presentation at the annual meetings of the House of Delegates of the A. M. A. Your delegates feel that you would be interested and profited by a full report of the actions of the 1933 session of this important body, but regret that the time allotted for this report necessitates passing over the greater part of it and only brief mention of those phases of the work in which we believe you will be most interested. Among these are the following:

The Board of Trustees reported that there are over 1,000 collection agencies which devote their attention either wholly or in part to the collection of medical accounts, and that many of the collecting agency contracts are entirely one-sided, unfair and may extort from the physician more money than they bring in. Inasmuch as collection methods such as destroy confidence, good will and respect of patients result in loss of patients as well as money to the physician, the Board of Trustees after looking into the methods of many agencies urges the physician to exercise caution in signing any collection agency contract.

The Council on Medical Education and Hospitals again called attention to the fact that over a ten year period the number of medical graduates greatly exceeded the number of deaths in the medical profession and that

the rate of physicians to population is twice as great in our country as in England, France and Germany. It estimates that there is a surplus of 25,000 physicians in this country, and that with the present rate of production the number of doctors will increase more rapidly than the general population. In spite of these conditions, over 12,000 applied for admission to our medical schools last year and over 6,000 of them were accepted for matriculation. In the light of these facts members of the Association are urged to inform the public that the profession is overcrowded and enlist the coöperation of college and high school faculties in placing before their pupils such information as will enable them intelligently to select a career. The support of the Association of American Medical Colleges is also asked in bringing about a substantial reduction in their enrollment.

For several years there has been widespread interest in the problems of medical specialism and a very general demand that means be found and standards formulated by which specialists may be known and recognized by their fellows in the profession and that in this process of standardization there should be a national and uniform standard rather than a multiplicity of standards represented by various state boards and state societies. The American Board for Ophthalmic Examination, the American Board of Otorhinolaryngology, the American Board of Obstetrics and Gynecology and the American Board of Dermatology and Syphilology have already been created to test the fitness and certify the qualifications of men engaged in or desiring to engage in these special fields of practice and their certificates are regarded as establishing the skill and proficiency of those to whom they have been issued. As a means of contributing to the usefulness of these boards the House of Delegates authorized the Council on Medical Education and Hospitals to express its approval of such special examining boards as conform to the standards of administration formulated by the Council and the Board of Trustees of the A. M. A. were urged to use the machinery of the Association, including the publication of its Directory, in furthering the work of such examining boards as may be accredited by the Council.

Because of the pressing and widespread nature of the problems of contract practice and the apparent confusion of mind of a part of the profession in regard to it, the Judicial Council stated anew the principles governing contract practice as adopted by the House of Delegates several years ago. These principles are stated as follows:

"Contract practice per se is not unethical. However, certain features or conditions, if present, make it unethical, among which are: (1) When there is solicitation of patients either directly or indirectly. (2) When there is under-bidding to secure the contract. (3) When the compensation is inadequate to assure good medical service. (4) When there is interference with reasonable competition in a community. (5) When free choice of physicians is prevented. (6) When the conditions of his employment make it impossible to render adequate service to his patients. (7) When

the contract because of any of its provisions or practical results is contrary to sound public policy."

The Committee on Medical Economics also gave consideration to this question and recommended that the action of county societies in dealing with these problems be based on the principles enunciated by the Judicial Council. This recommendation was adopted.

Respectfully submitted,

M. L. Stevens,
T. Preston White.

Secretary McBrayer: Mr. President, the House of Delegates is pleased to report to the General Session the following officers for the ensuing year, except the secretary-treasurer and ten councillors who are elected for a three-year term, and a member of the Medical Society Foundation for 5 years.

I will just state that it is identical with the matter adopted by the House of Delegates a few minutes ago and read in your presence. If there is no objection I will not read it again.

President Manning: Are there any nominations from the floor? If not the report from the House of Delegates is approved.

Dr. Verne S. Caviness (Raleigh): I move the report be adopted.

. . . Seconded and carried. . .

President Manning: The next in order is the installation of the incoming officers. I will ask Dr. Caviness to escort the President to the chair. (Applause)

President Manning: I want to say that nothing gives me more pleasure than to vacate to my good friend, Dr. McCain, and I wish him Godspeed in the work. (Applause)

President McCain: I appreciate more than any honor that has ever come to me, being elected to the presidency of this Society, and I want to promise my best efforts to make the society a success during 1935. I am fully conscious of my limitations and conscious of the heartiest support that I will need from every member of the society. It has been an inspiration to me during the year to be associated with Dr. Manning and to see the energy that he has expended, the time and thought that he has put forth in working for the Society. Only those who have been in close association with him realize under what obligations we are to him.

I think the meeting just closed is the finest meeting which it has been my privilege to attend, and it is due to the wonderful energy and ability of Dr. Manning.

I am glad he said what he did a few minutes ago about the necessity of the strongest possible organization if we are going to function as a real medical society. We need it to protect ourselves from the various forces that are at work apparently to take medical things out of the hands of the medical profession, and we need it in order to exert the strongest possible

influence within our own ranks, to enable us—each one of us—to live up to the ideals and high principles of the medical profession.

During my incumbency I expect to exert my influence to the strongest possible extent in trying to help forward the interests of the private physician. I think the Medical Society of North Carolina should take concerted action about putting the responsibility of the chronically indigent sick upon the public and take the burden off the shoulders of the members of the medical fraternity. There are always some temporarily indigent whom the medical profession will always want to carry, but the individuals who are always indigent, who never pay and never expect to pay, should not be an obligation of the medical profession.

I was glad Dr. Northington said what he did a few minutes ago about the necessity of taking some steps that those who are able to pay for immunization should be made to pay for this work. I think that by taking the proper steps we can gradually get people to take pride in taking good care of their own immunization work—those that are able to do it. I think that the force of the whole Medical Society should be put behind such a movement.

Again, I want to thank all of you and I want to say also that I think you all realize that in undertaking the duties of the presidency of this Society I am conscious that it will be much easier because Dr. McBrayer will be the Secretary of the Medical Society this year.

I think those of you who know how much time and energy and thought Dr. McBrayer has been giving to the Medical Society will realize how much we owe to him.

Thank you very much. (Applause)

I believe neither one of the vice-presidents who were elected are here, so we want to install Dr. Ringer, the president-elect.

We will ask Dr. Davis to bring him forward. (Applause) We would like to have a few words from Dr. Ringer.

President-Elect Ringer: Mr. President, Ladies and Gentlemen: It has been said that brevity is the soul of wit and if that is so you are going to hear one of the wittiest speeches you ever heard. I thank you with all my heart for the honor you have placed upon me and I pledge now during the year of my apprenticeship my wholehearted support to my superior officer, and my friend, Dr. Paul McCain. (Applause)

President McCain: We will now hear report of Committee on President's Address.

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS

Your Committee on President's Address begs leave to submit the following report:

We wish first to congratulate the Society on having Dr. Manning as its president. Unquestionably, Dr. Manning has been one of the greatest presidents we have had in past generations.

We wish to commend most heartily Dr. Manning for his tireless efforts in behalf of this Society, and to publicly express our appreciation for his many accomplishments.

We earnestly recommend to every member of this Society the careful reading and study of the President's Address when it appears in the Transactions in order that he may understand his responsibility as a member of organized medicine.

We want to stress the fact that the Society cannot function without adequate resources. It is of vital importance that our membership be increased or our dues must be raised in order that ample funds may be provided with which this Society can function with dignity and credit to our profession.

We recommend that the Executive Committee take under consideration the appointment of permanent committees on Maternity and Infancy and on Immunization, and devise ways and means to finance their activities.

Respectfully submitted,

N. C. Daniel, *Chairman,*
J. F. Robertson,
Julian A. Moore,
Robt. F. Leinbach,
J. R. Terry.

. . . Unanimously approved. . .

President McCain: Is there nothing else to come up?

Dr. W. M. Johnson (Winston-Salem): Just before you go I would like to move or suggest that this body give Dr. Manning a vote of thanks and appreciation for the excellent service he has rendered and that we pledge our support to the incoming officer.

. . . The motion was seconded by everybody and everybody arose and applauded. . .

. . . The meeting thereupon adjourned at nine-ten o'clock. . .

CONJOINT SESSION

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

AND THE

NORTH CAROLINA STATE BOARD OF HEALTH

The Conjoint Session convened in the Ball Room of the Carolina Hotel, Pinehurst, North Carolina, at 12:00 M., Dr. Carl V. Reynolds, President of the State Board of Health, presiding.

PRESIDENT MANNING: The hour has arrived for the Conjoint Session of the State Board of Health and the North Carolina Medical Society. Dr. Reynolds will preside.

CHAIRMAN REYNOLDS: Mr. President, Members of the Medical Society of the State of North Carolina: The Conjoint Session of the Medical Society and the State Board of Health will come to order.

I have a disturbing announcement to make. It is disappointing to me and I am sure it is to the rest of you to announce that Dr. Parrott on account of illness is detained in Raleigh. He won't be with us, the first time in thirty-seven years that he has failed to attend a meeting of this Society. He sends greetings, and I am delighted to state that his condition is much better this morning.

He has delegated a man who needs no introduction, Dr. G. M. Cooper, who is the Director of Preventive Medicine of the State Board of Health, to deliver to you his message. So I shall now call on Dr. Cooper to carry out his wishes. (Applause)

DR. G. M. COOPER: Mr. President, Ladies and Gentlemen: About a month ago Dr. Parrott requested from all divisional heads a brief synopsis of their year's work. He then dictated some notes for his report. Before compiling it he was stricken to his bed.

Last Wednesday he was feeling much better and sent for his secretary and that day compiled this report. The exertion was too much for him and he suffered a setback.

On Friday he sent me the report with the request that I condense it. Before reading two pages I realized that I could not condense it without rewriting. That would have made it my report instead of his, which was not intended. I realized further that the keynote of the whole document is a message straight from the heart of a great physician to his fellows, a physician who has had all the honors possible within the gift of his profession and who has served it with a passionate zeal for nearly forty years.

It is the message of a great man, sick, tired, and weary, yet full of gratitude to his fellow-physicians and hope for the future. In the years of

my own intimacy with him I have come to love and respect him as I have few other men.

So I could not cut a line out nor change a phrase. I hope, therefore, you will hear his message through in the spirit in which he submits it.

. . . Dr. Cooper then presented Dr. Parrott's prepared paper. . . . (Applause)

ANNUAL REPORT NORTH CAROLINA STATE BOARD OF HEALTH TO CONJOINT SESSION STATE MEDICAL SOCIETY

May 2, 1934

By Dr. James M. Parrott
Secretary and State Health Officer

When I was elected State Health Officer I had been a physician for more than thirty-five years. During the major part of this time I was engaged in general practice, both town and country.

I looked in on the meeting of the State Medical Society the year I received my license—1895. I immediately joined, and with the exception of 1898, I have not missed a session. In other words, I have answered the annual roll call this time, making thirty-seven years without a break. During this period I have been active in organized medicine and have given my best to it.

When I assumed the responsibility of State Health Officer, I brought to the task a physician's heart. I know out of my experience as well as by precept and example, the hopes, aspirations, ideals, and may I say prejudices, too, of the doctors of North Carolina. It is impossible for me to view the health service from any other angle than that of a man of medicine.

I am mindful of the history of the Health Department. At the organization session in 1849, the State Society provided for a section on preventive medicine and then began, in an organized way, the long, long fight to protect the health of the people of North Carolina. It was not until 1877 that the Medical Society succeeded in impressing the legislature sufficiently to get any kind of financial recognition, and then only in an appropriation of $100.00 a year for health work.

In 1879, the General Assembly created the Board of Health substantially along the lines as now constituted at the insistent request of the State Medical Society.

During all the years, at no time, has the appropriation by the General Assembly been sufficiently large to carry the financial burden of the Department of Health, and in a large measure this has fallen on the shoulders of the hard-pressed physicians of the commonwealth. Throughout the years our doctors have labored for this Department and have sustained its activities, fighting always like noble sons of Zeus against hell and death, ignorance and popular prejudice, too.

Thus, the physicians of the state can rightly claim that the Department of Health is theirs, not by accident of discovery or the broad sword of gory conquest, but by the divine right of creation. However, it is yours to be administered for the public good and for the public weal alone.

The philosophy of public health is the philosophy of the physician—it is the philosophy of sacrifice and service. The Health Department is the crowning glory of the medical profession. It is the outstanding contribution of the physicians to the civilization of the commonwealth. Stripped of all its verbage, the New Deal is nothing more or less than the application of the principles of the golden rule. Its foundation is the one on which the practice of medicine rests so the New Deal to physicians is an ancient deal for which we have been fighting through all the centuries.

A few years ago a distinguished North Carolinian declared for the "right of the little man to live." That was fine. The medical profession, however, has always stood for, and is still battling for the right of all men to live life more abundantly. The declaration that the medical profession is dedicated to humanity is not an idle boast. No man of merit has ever appealed to physicians in vain. Certainly, the classic injunction "to thine own self be true," and the divine inspiration that one should begin at Jerusalem means that the physician should care for his own in a material sense, but it does not mean that the common good should be subverted to selfishness. For to be sure, to give in intelligence and with an understanding heart, is better than to receive in selfishness. More to be desired is it to walk the highways in poverty and in honor than to dwell in palaces in dishonor, and never must we permit the dollar mark to be substituted on our banner for the insignia Aesculapius.

I am happy to advise that your Health Department is carrying on despite obstacles, all sorts of discouragements, financial difficulties, popular prejudices, and doing its work in a great, fine way, maintaining the tradition of the profession and serving mankind.

At this time, allow me to remind you that organized medicine in North Carolina has always had, and now has, absolute control over and dictates the policies of the State Department of Health. This Society now has, and it has always had, a majority of the members of the Board, four of whom are elected by the Society, the others appointed by His Excellency. Our Governors, without exception, have recognized organized medicine, and have been glad to make appointments satisfactory to the members of this organization. So, whatever shortcomings your Department of Health may have, they are shortcomings of your own child and it lies within your power, easily, to correct them. By the same token, when the Board of Health accomplishes great things, as it has, and is now doing, it is, I am sure, your joy as well as privilege, to give encouragement and to stand by. The responsibility of carrying the health service in North Carolina is your responsibility. You would not be rid of it if you could, and you cannot even if you would.

Opportunity for service belongs more to the medical profession than any other and the opportunity brings with it corresponding responsibility. With this is mind, I now undertake to re-state the principles which govern the present Board. The policies of this Department are:

(a) It is not a law enforcement agency and does not undertake to do so except under rare circumstances when the public good demands it.

(b) This is not a diagnostic agency or a curative agency, and does not do so except as a courtesy to the physicians or when public necessities require. These, of course, are unusual.

(c) In part only is this Department a health promotion agency. The Health Department can, and should, promote health up to a certain point but when in its general scheme of promotion it reaches the treatment stage even the responsibility for that rests with the doctors. I repeat an illustration which I have used before. It is our part to warn the expectant mother that certain symptoms may indicate serious conditions and that she should seek, under such circumstances, the advice of a physician. It is the physician's duty to walk with her through the valley of the shadow and it is the part of the Health Department to meet her on the other side with helping hands, with kindly advice for herself and her offspring that she may live a normal life and that the offspring may grow to be a good citizen.

(d) It is definitely the function of this Department to engage in preventive medicine, however, the health service does not think it has preoccupied this entire field. It is our thought that the physicians have a definite duty in this field and that we should lead as the recognized agents of the medical profession for the good of humanity.

Parenthetically, let me say that when we speak of results which have been obtained, your Department of Health does not think that it has cornered the market in this great field because we think that the physicians of North Carolina have played the major role in reducing mortality in the commonwealth. We regard ourselves as those who should assume the responsibility of leadership only but we have not the arrogance to assume, nor is it our desire to do so, that we are the whole show in preventing human sickness and in adding to the span of human life.

Since our last annual meeting, the duties of the Department have increased and the resources of the Department have again decreased. We have only been able to carry on because of the remarkably fine and loyal faithfulness of the employees of the Department and the very sympathetic, constructive assistance and support given public health by the doctors of the commonwealth. I wish the people of North Carolina to understand definitely, and I proclaim it now, that the small appropriation and support which the state has, and is now giving the Health Department is a mere bagatelle compared to the service which the commonwealth is getting and that without the great masterful work which the physicians are doing, disease would ride rampant over North Carolina despite all the efforts which the Health Department can render.

I find myself constantly amazed and thrilled at the efforts of doctors to care for the public good. I have never known a physician, in all my long and varied experience, who hesitated a moment in doing his duty even if it meant tremendous financial sacrifice and personal inconvenience, and danger too, has not stayed the hand of the physicians. It's a great thing to answer the call of the country when the flags are flying, the bands are playing, and the whines of the death-carrying bullets are heard, when the world is standing by applauding efforts to save the nation's flag, but it is finer still and requires a higher degree of courage to quietly, unostentatiously, stimulated only by the thought of doing duty alone and unaided, to subject oneself to a highly dangerous disease, and in many instances a personal experiment, that a child may be saved. Such are modern Daniels come to the lion's den.

Physicians are a select group, standing head and shoulders in intelligence and achievement above any other group of our people. The prospective medical man must be a high school graduate to enter college and he must do outstanding college work for not less than two years before he is selected as a medical student. Again, he must do outstanding work to be admitted to a reputable medical school, and again, he must do outstanding work to receive proper interneship and even after all this, he must be subjected to a re-selection by the State Board of Medical Examiners. In other words, the pick out of the best of the best! And too, the physician is a man of remarkably high merits. So far as I know, there is not a member in the penitentiary of North Carolina or on our roads. This cannot be said of any other calling, even the ministry, and it certainly cannot be said of our friends in the legal profession or our one-time banking friends. And, too, doctors are men of faith. It takes a great deal of patience and confidence and faith to battle on frequently against overwhelming obstacles for the altars of the home, the temples of the gods. It takes faith, faith of the highest order, the like of which I seriously doubt can be found in any other group.

Now my friends, when an organization composed of men of outstanding intelligence, accomplishments, men of high purposes, men of outstanding character, men of great faith, put their shoulder to the wheels, the result is always for good. And so, we should not be surprised, indeed, we would be disappointed if your Health Department, dedicated by you, to the commonwealth, fighting under God for humanity, should not accomplish and do great things.

Our experience continues to bear out the wisdom of your Board of Health when it set up in 1931 a very simple organization. We have not found it necessary to change it. From time to time we have only added to or subtracted from it to meet changing conditions.

DIVISIONAL ACTIVITIES

As heretofore, the Division of Administration continues to be headed up with the State Health Officer and to act as the clearing-house and central station of all the services.

The Division of Preventive Medicine continues to enlarge its service, despite a woeful lack of funds. This occasions no surprise because this vital service continues to be directed by the veteran in the service, the able Dr. G. M. Cooper. The amount of work which Dr. Cooper accomplishes is prodigious and may fairly be divided into four general divisions:

(A) *Health Education.* It is no small task to edit our "Health Bulletin" and to keep it at the high standard which it has attained through the years. It has been accurately stated that during the recent year, the newspapers of North Carolina have quoted more frequently from the Health Bulletin than at any previous similar time. With the assistance of Doctors Hamilton, Milam and Knox, Dr. Cooper has revised, re-written and provided a number of special publications. The demands for literature of a health character continue to increase, causing a corresponding increase of the burdens of this division.

Through the coöperation of Mrs. Highsmith, executive secretary and editor of the publication of the North Carolina Federation of Women's Clubs, the assistance of that great organization in our educational work, particularly for maternity and infancy, has been secured and is rendering valuable service.

(B) *Personal Correspondence.* To this department is referred a vast number of letters coming to the Board, seeking information on every possible imaginable service and subject.

(C) *Maternal and Infant Hygiene.* The work necessitated by this service is remarkable and the demand for literature on the subject has grown tremendously. Our people are being aroused as never before to the consciousness of the high infant and maternal death rate in our state. This public awakening is now demanding results in the way of reduction in mortality to at least the average throughout the country.

Dr. Cooper, with the assistance of others, during November and December held a series of group conferences in every section of the state with representative physicians. A central conference was held in the department in March, the results of which will be of undoubted benefit. To the physicians of the state who have responded so magnificently to the call of the department, we extend our sincerest appreciation.

Dr. Cooper has succeeded in placing in active service a number of nurses, (known as Child Welfare Service Nurses) through the goodness of the U. S. Children's Bureau. While this service has of necessity been hastily organized and of a very temporary character, it will do untold good.

(D) *School Health Supervision.* In September two additional nurses were employed, raising the number of staff nurses in this department to eight. As usual, this service is confined to school health supervision during the winter months and to work with midwives during the summer. The midwives, like the poor, will be with us always and while we would like to be rid of them, we must realize that we are confronted with a practice rather than a theory and, therefore, we must undertake to make the best

of a bad situation. This means that midwives must be properly instructed, particularly in what not to do. They must also be directed to see to it that a physician is consulted before labor begins, and that a physician must be called immediately upon the discovery of approaching danger signals. During the past summer, the nurses instructed midwives in fifty-six counties and secured ordinances governing the practice of midwifery in these counties. In only one county was the service of the nurses declined by the local profession and that due entirely to a misunderstanding of the purposes and objectives.

There is no question but that the school work of these nurses has resulted in a vast amount of correctional work being done by the physicians in the state, and we are quite sure that the public now appreciates the importance of consulting their private physicians and that the physicians, themselves, appreciate the importance of this activity.

The Division of Sanitary Engineering is headed by Mr. Warren H. Booker. In addition to its usual and routine work, this division has had an unusual experience in that a large amount of CWA service has been carried by it. We should be justly proud of its outstanding accomplishment in the extension of rural sanitation and mosquito control and drainage service through the help of the CWA. Fortunately, the state administrator of the CWA has been very sympathetic and helpful and has been a mainstay through these trying months.

It was found necessary in order to carry the service on with a minimum amount of friction and a maximum of efficiency to transfer, temporarily, six or eight of our trained sanitarians to CWA work, and to appoint Mr. M. F. Trice as Assistant State Director for Community Sanitation and Mr. M. R. Cowper as Assistant State Director for Mosquito Control Work. Mr. Trice has been with the Department for a number of years and his good judgment and long experience proved the wisdom of his selection. Mr. Cowper, who had only been with the service a short time, had been trained extensively in mosquito control through the goodness of the Rockefeller Foundation and with his fine poise and excellent judgment, put over and continues to put over a good piece of work. The activities of these two men and their services cannot be adequately evaluated at this time. We know that the state is now more health-minded, that its sanitation has been tremendously improved and that the great good which has been accomplished by community sanitation and mosquito control will continue undiminished through the years.

The Division of Laboratories is enlarging and improving. When our beloved Dr. Shore left us, I thought that the laboratory had reached its very highest possible point of efficiency and service, and certainly expected more or less recession. I am happy to report that under the direction of Dr. John H. Hamilton such has not taken place. Time does not permit a detailed discussion of the work of the laboratory. However, there are some phases of the work I feel it is necessary to mention. We have adopted the policy of gradually withdrawing laboratory service except for purely

public health work and will continue to do this as fast as the public good will permit. For example, I have thought that there are enough private laboratories in the state to take care of pathologic specimen examinations and have discontinued this. The time required in this work is now devoted to other activities.

If the people of North Carolina had to pay at retail prices for the service now rendered by the laboratory, it would cost the public more than a million and a quarter dollars annually, whereas the laboratory is spending only about twenty-seven thousand dollars of the tax money annually. I definitely sounded the note in my report to this Conjoint Session a year ago, that there would be no retreat in laboratory services and that instead of increasing charges for biologics, we would make an effort to reduce them, and to furnish even more than we had been. This promise we have made good. We have, in my opinion, the greatest single state laboratory in the Union with the exception of only one. It must be kept, and so far as my ability goes, it shall be kept in at least its present high degree of service and efficiency.

I do recognize and sympathize with the conception of the commercial world that the laboratory should not compete with private enterprises, but until private enterprises become more reasonable in their charges, the public weal needs the laboratory. Past experience has shown that when the laboratory cannot or does not produce biologics, the prices rise. There is a "whale" of a difference in the cost to the taxpayer of fifty cents which the laboratory charges for a given package of diphtheria antitoxin and $2.25 which is the wholesale price charged by commercial houses. There is also a tremendous difference between the approximate estimated cost of full treatments of rabies at $5.00 and the price charged by commercial houses wholesale at $20.00.

The Department is cognizant of the fact that the individual should be compensated for his work, that an enterprise should receive a just and fair profit, but it does not believe that excessive charges should be made for things that are essential for the public good or the treatment of disease. This Department says to all such "Thus far shalt thou go, but no further; here shalt thy proud waves be stayed."

The Division of Oral Hygiene continues to be headed by the astute, masterful Branch. The dentists have rallied in a great way to his leadership in public health. With the heart of true professional men, and with a unanimity which might well be emulated, they have responded unselfishly and with devotion to his call. More than seven hundred of them gave of their services to a remarkable efficient degree in the general survey of certain groups of school children in the state and their reports have poured in to our office by the thousands. The findings of the survey will be of inestimable value to public health in North Carolina.

A year ago, when our appropriation was cut, it was freely predicted that the dental service would lose. However, Dr. Branch went into the field and sold his service to the public in such a great way that he now

has sixteen dentists in his service paid from funds from outside sources. This is a remarkable achievement and deserves the highest commendation.

The Bureau of Epidemiology has been greatly improved during the year and is now under the active direction of Dr. J. C. Knox, who, as most of you know, is a highly trained man specializing in this particular field of the great specialty of public health. The division has been unusually active during the past year, in fact I do not believe that it has rendered so much and such effective service in any one year in its previous history. Its activities may be grouped under four general divisions:

1. *Investigation,* including typhoid epidemics, Rocky Mountain spotted fever epidemics, malarial service, storm relief work, health surveys, expert advice to county health departments.

2. *Educational Activities,* including the preparation of a volume of "Reviews of Certain Preventable Diseases," revision of eight of the "Facts" series booklets, preparation of rules regarding reportable diseases and particularly psittacosis, syllabus of county health department administration, radio talks, and numerous conferences requiring expert and technical epidemiological advice.

3. *Office Activities,* particularly the preparation of the Second Morbidity Report, tabulation of communicable disease reports daily, weekly, monthly, and yearly and the supplying of this information to the departments and services needing same, form letters on many subjects and correspondence regarding numerous health problems.

4. *Miscellaneous,* visitors to the department, including medical students from Harvard, Vanderbilt, Johns Hopkins, and others.

It is with deep regret that we anticipate the early removal by the International Health Board of Dr. Milam, who has been of such invaluable and outstanding service to us during the recent years and who is so well and so favorably known to many of you.

Dr. R. T. Stimpson, in his fine, quiet way, continues to handle the details of the Bureau of Vital Statistics in a most satisfactory way. He is vitalizing vital statistics and the service is of more benefit at this time than ever before. It is difficult for us to understand how we got along without the services of this intelligent, hard working, practical gentleman.

A very determined effort is being made to improve the reporting of vital statistics. With this end in view, Dr. Stimpson has spent from ten days to two weeks out of every month in interviewing local registrars, physicians, undertakers, etc. Over half of the counties in the state have been visited and it is expected to continue until all have been reached.

Regional Consultant William D. Riley continues his great syphilis campaign. His accomplishments, while of an investigating and preliminary character, are surprisingly good. During the year he has delivered many lectures and held many conferences. He is rapidly developing a plan which we hope to be able to put into operation for the ultimate practical control of syphilis. The outlook at this time is a pessimistic one but we are

moving forward with hope and confidence and trust that we can have something definite to offer in the way of a constructive program in the near future.

I am very happy to report that we have been able to persuade the Public Health Service to let Dr. M. V. Ziegler continue in our Department as an expert adviser and to specifically direct our county health activities. To our intense satisfaction, Dr. Ziegler has been able to maintain, in fact to slightly increase the amount of county health work in this state in spite of the depression and all sorts of unforeseen obstacles too numerous to mention. One of the bright spots in our Department is the increasing demand for local health work of a high class, type and kind. The public is beginning to realize more than ever before that public health is a specialty in medicine and should be directed and handled by physicians specifically and especially trained just as for eye, ear, nose and throat, surgery, etc.

There are a number of counties not heretofore carrying full-time local health service that are ready to be organized on a full-time basis. The further development of new services has not been prosecuted energetically during the past year owing to the limited funds available from this office, and then too, it was thought advisable to lend every effort to continue existing services rather than to develop new services. With the improvement in the economic recovery, the demands for local health services are becoming more pressing and it is felt that this department should encourage the development of these services along county or district lines, particularly in view of the fact that 48.1 per cent of our rural population is without any type of full-time local health service.

While the general death rate in North Carolina was slightly lower for 1933 than for 1932, there are certain black spots. Diphtheria has shown a very definite increase and during the recent six months the number of cases have been twice as numerous as during the same period of the preceding year. This, of course, is in line with the prognostication which was made by this service a year ago. Had it not been for the unusual skill of North Carolina doctors, the mortality from diphtheria in North Carolina during this recent winter would have been appalling.

There has been no appreciable diminution in the death rate caused by cancers, heart disease and kidney disease in the recent year. I am optimistic enough to believe that these so-called diseases of degeneration can be reduced and they must be. In this I am buttressed by the recollection that twenty-five years ago we looked with a fatalistic attitude on tuberculosis, and yet, within the recent sixteen years, the death rate from tuberculosis in North Carolina has been cut more than one half. We must be up and at them, me lads!

The maternity and infancy death rate per thousand is slightly lower but is far, far from being creditable. There are only seven states with a higher rate. Our maternity death rate in substantially thirty per cent higher than the average of the United States. The task to reduce this is

an enormous one, it is almost insurmountable, but we have optimism and we have hope. The physicians in the state have taken hold of this matter in a great way, just as they have always done. Group meetings have been held with representatives selected and nominated by the representatives of organized medicine in various sections of the state, and these in turn have sent to the department one of the number for a general conference. All this without compensation. I bet my old hat that if certain other professions which cry long and loud about their love for the commonwealth had done this, the state would have been presented with bills of no small proportion for consultation, advice, and legal services rendered.

I am more and more impressed with the value of education in health work. This is a slow, tedious process. It is not spectacular. It has in it nothing of the grandstand, but it is lasting and permanent. It is the definite hope and purpose of the Health Department to stress the principles of public health through education with increased energy and power. For the immediate present, we are concentrating our efforts on the acute transmissable diseases, and maternal and infant morbidity and mortality. It would be a great thing if the people of North Carolina could be educated about the value of proper immunization to the point of having the children properly immunized at the proper ages as a matter of family routine. I will hail the day with real joy when our people are so impressed with this that the immunization campaigns may be no longer necessary. However, it appears now that we have not yet reached that point throughout the State and that it will continue to be necessary to put on such campaigns from time to time. It is my hope and thought that we can gradually withdraw from this, and will do so as rapidly as the public good will permit.

The Department of Health recognizes the duties and responsibilities of the medical profession in this field of work, and it is the sincere desire of this service that the doctors will continue to coöperate with us in the same fine, unselfish way which they have done in the past. The control of diphtheria by immunization offers far and away the major value. Since this is true, certainly it is the responsibility of a health service to press such immunization. On the other hand, the physicians also have a duty here and we crave that our doctors will be aggressive in this matter. I believe that it would be a part of wisdom for the State Medical Society to appoint a permanent committee on immunization to work out plans with the State Board for immunization services. This appears to be particularly important in view of the fact that a scheme which would be practical in one county or section would not be satisfactory to another. The committee on immunization should have elastic authority so that it can meet all local needs and requirements.

I trust that this section of the State Society will also appoint or continue the present semi-official committee which is functioning in connection with the public health work for the reduction of maternal and infant mortality and morbidity. The semi-official committee which is now serving

has been of very great value and if it were continued in an official way by this body, it would be of outstanding service both to the public and to the doctors.

Sometimes I wonder if we are not already approaching quite closely to the irreducible minimum for certain types of diseases, and I am certain that in the future we shall have to get a reduction in the number of deaths by attacking those diseases, like the diseases of degeneration, more vigorously than ever before. My own thought is that we have now come to the time when we must give more attention to morbidity. In the abstract, it is of doubtful value to save a life which, after being saved, cannot support itself because of physical disabilities. Certainly, it is more challenging to not only save the life but to restore it to a normal health condition so that it may carry on with reasonable efficiency. I believe that a reduction in morbidity in the early years of life would be reflected in a reduction in mortality from degenerative diseases in the latter stages of life. In 1890 the life expectancy of a child ten years of age was 48½ years; in 1930 it was more than 55 years. In 1890 the life expectancy of a person sixty years of age was 14 years and 9 months; in 1930 it was 14 years and 5 months. These figures give cause for very serious consideration and most intensive thought. In their final analysis, they simply mean that we have improved conditions up to sixty years of age, but have lost ground from sixty on. It is estimated by statisticians that an average life of a mammalian is five times that of the growing period. Since the average human being does not complete growth until approximately twenty-five years of age, by the rule of average for mammalians, a man's average age should be not less than 125. It is up to us to make life as safe for man as for beast.

While extremely interesting and most valuable, a further study of longevity is prohibited right now by our limited time. I cannot restrain myself, however, from calling attention to the fact that in the first five year period of this century, tuberculosis led all other diseases by a large margin with a tremendously high death rate. In the period 1925 to 1929, this disease fell to sixth in rank with a death rate not greatly in excess of one-third of the earlier figure. Even the most optimistic interpreters of statistics hold definitely to the view that we have not reduced the death rate from degenerative diseases, and that in a definite number there has been an increase.

A reduction in morbidity will require more highly trained public health specialists than we now have, but this need not be a deterrent factor for these trained specialists may be developed.

After giving the matter careful thought and study through a period of more than two years, I have come to the definite conclusion that the State of North Carolina should recognize the fact that public health is a state-wide function and that the state should assume financial and directional responsibility for the same in a large and high degree, keeping in mind the preservation of the fundamental principles of local self-govern-

ment and the varying necessities of the many sections and requirements of the commonwealth.

Disease knows no county boundary line, but the problems of the mountains in a practical way are quite different from the problems of the sea-coast. And, too, North Carolinians are individualistic fundamentally, and I trust they will always remain so. However, individualism runs to seed when it forgets and neglects the common good and overlooks the value and importance of coöperation. Many communities in North Carolina, indeed whole counties and groups of counties in the state, are utterly unable to provide for themselves even a minimum health service. Here the state has a definite duty and an inescapable responsibility. I do not believe that it is now practical, if indeed wise, for the state to take over all health work and administer it from a central office. At least, I am now opposed to this. However, I do believe that the state should set up, maintain and support in a central department, such as we now have, adequate provisions for intelligent supervision, coördination, inter-section and inter-county protection and for the vitally important purposes of seeing to it that local health services are manned by trained experts and do not become local political footballs to be kicked about and traded on by local designers.

Strongly do I urge that the state should not only continue its present Department of Health as it is, with certain needed minor changes, but should set aside an adequate fund to properly aid counties or districts, to be known as a State Aid Fund for health, and to be limited in the proper ratio, keeping in mind the definite local necessities and requirements. This fund should be allocated on the basis of county or district necessities, with proper division for the protection of the fund on the one side by the state through its Health Department against inefficiency and extravagance, and the maintenance on the other hand of fundamental principles of local self-government. The details of such a plan can, of course, be easily worked out and should be done with the definite thought that there will be no leveling down of present highly efficient county and district health services, but there should be a leveling up by providing health departments where none now exist or where existing ones are inadequate and inefficient.

In conclusion, permit me to say that we shall fight to maintain the advanced positions which we now hold and to consolidate them. We will emphasize the value of health education. We will press forward along constructive lines with the proper immunizations against certain acute diseases. We will carry on in a greater way than ever before to reduce maternal and infancy deaths and morbidity in the state to the end that a child may find it just a little safer to be born in North Carolina than it was to serve in the front ranks with the heroes who wrote that great chapter in American history on the soil of France, and that the mothers shall not be penalized with their lives or loss of their health by bringing into the world the future North Carolinians.

It is extremely difficult, if not impossible, and too, is it desirable that we think of public health in terms of its material values? It seems to me as I contemplate it all that it is debasing to do this. I prefer rather to think of it as North Carolina's greatest, most basic, spiritual activity; for it is a spiritual activity, and in this I take comfort because I know that I have, and my colleagues have, dedicated their lives to an imperishable service.

I give you a story—in the long ago in a far eastern country there lived a great king. He was a mighty man of war. He pushed the frontiers of his empire to the uttermost parts of the known world, and after he had accomplished it all, he determined to build for himself an imperishable monument and to gird himself about against all enemies that his soul might rest itself in peace and his body be given to its pleasure. He brought from all parts of his great kingdom the imperishable granite and the everlasting cedars, and he had the most skillful of his builders to construct around his capitol city a vast wall which could not be broken. He chose of his best artisans and most experienced planners those to build his palace, and this he did with the best of everything; and studded it and finished it with the most expensive jewels and costly metal, and he surrounded this with an unbreakable wall. He selected of his vast armies the finest of his troops to man the ramparts of his city. He selected of these the choicest and placed them in his palace; and then he gave himself up to riotous living, enjoying a sense of false security, happy in the belief that his city could not be taken nor could his palace be destroyed. But the enemy came, changed the course of the river, marched on dry land under the wall, fell on his drunken soldiers, slaughtered them and destroyed his city, tore down its walls and took him captive; and now only the explorer has been able to find but a small part of his great city.

A time after the fall of this mighty emperor, who based his all on the materials, there appeared in another land a humble Jew, a member of a despised and persecuted race, without a common country or a common flag, and in slavery mastered by a more powerful people. He taught spiritual values. He appealed to the finer things in man. He held up a new hope and a higher purpose. Property to him was of secondary importance. The soul of man was his primary object. He walked, to be sure, to the outer gate and up the hill and fell on sleep on the cross; poor, despised and forsaken; but today His life is the most powerful factor in this world and His command is the command of the ages. He properly valued spirituals.

With something of this thought in my own mind, I gain courage and take new hope when I am reminded that there are thousands of people alive today and enjoying life's richest blessings, and thousands of homes preserved that otherwise would have been destroyed were it not for the great spiritual services which the public health department and the doctors of North Carolina have rendered, and under God, purpose to continue to render, carping critics to the contrary notwithstanding.

CHAIRMAN REYNOLDS: Gentlemen, you have listened to a classic, full of information, from a great man and a great mind, energetic and enthusiastic in his work. You have also had a résumé of your Board of Health work in the various divisions.

What is your pleasure?

. . . It was regularly moved and seconded that the report be accepted. . .

CHAIRMAN REYNOLDS: It has been moved and seconded that this message be accepted. All in favor of it please say, "Aye," all those opposed, "No." It is unanimously carried.

It there anyone who would like to present anything for the good of the cause?

DR. GEO. H. ROSS (East Durham): I have heard a great many reports from State Boards of Health. I have never heard a better one than this one, unless it is the one he gave last year. I told him I had a heart full and a whole stomach full of something good I wanted to say for him last year.

I think we ought to pay some respect to him on account of his illness and send him a telegram or something, through our Secretary, complimenting him on his wonderful message and wishing him a speedy recovery.

"Jim" Parrott—we used to call him "Peck" as a student—is a wonderful fellow, a friend of the people, and a friend to us.

CHAIRMAN REYNOLDS: Do you make that as a motion?

DR. ROSS: I make a motion that we send him a telegram and instruct the Secretary so to do.

. . . The motion was seconded by several members. . .

CHAIRMAN REYNOLDS: It is moved and seconded that the Secretary be requested to send a telegram to Dr. Parrott. I suppose there is no discussion. All those in favor of that motion please say, "Aye," opposed, "No." It is so ordered.

Is there anything further you would like to bring before this Conjoint Session? If not, a motion to adjourn is in order.

. . . It was moved, seconded, and voted that the meeting adjourn. The meeting thereupon adjourned at one o'clock. . .

SCIENTIFIC SECTIONS

PEDIATRICS

GYNECOLOGY AND OBSTETRICS

MEDICINE

SURGERY

OPHTHALMOLOGY AND OTORHINOLARYNGOLOGY

PUBLIC HEALTH AND EDUCATION

SECTION ON PEDIATRICS

Wednesday Afternoon Session, May 2, 1934

Dr. S. S. Saunders, *Chairman,* Presiding

The Pediatric Section of the Medical Society of the State of North Carolina convened at two-fifteen p. m. in the Ladies' Card Room, The Carolina, Pinehurst, Dr. S. Stewart Saunders, presiding as Chairman.

Chairman Saunders: Before starting the program I would like to appoint on the committee to select a paper for the Moore County Medal Dr. C. R. Bugg, Dr. Street, and Dr. Ravenel.

It is usually customary for the Chairman of the Section to deliver a paper, so I am going to inflict a little paper on you on "Scarlet Fever Prophylaxis."

SCARLET FEVER PROPHYLAXIS

(Chairman's Address)

S. Stewart Saunders, High Point, N. C.

Of all infectious diseases there probably is none whose attempted prevention and serum treatment has caused more widespread interest, none which has occasioned so much controversy, as scarlet fever. It is not my object in this brief paper to take sides pro or con, but rather to present the main facts on both sides of the case.

We all know the history of scarlet fever and in general the type of investigation which has been undertaken regarding it, especially in recent years.

Little was done regarding immunization until the work of the Dicks in 1923-24. They elaborated a means for controlling the disease through the development of (1) a method of identifying a specific type of hemolytic streptococcus as the cause of scarlet fever, (2) the control of quarantine by means of cultures of material from the nose and throat, made on blood agar plates, (3) a skin test for determining susceptibility to scarlet fever, (4) a method of active immunization of susceptible persons, (5) an antitoxin specific for scarlet fever for use in the treatment of patients and in the prevention of the disease. A Scarlet Fever Committee was organized by the Dicks, a patent secured and assigned to the committee. Biological manufacturers had to obtain a license from the Scarlet Fever Committee before offering these products to the profession. (By the way—a reliable drug firm took their scarlet fever toxin off the market a short while ago, not because they did not consider their product worth while, but, as they informed me, because its continued sale might necessitate an expensive law-suit.)

The Dicks, their co-workers, and followers, in the course of the past 10 years have been most enthusiastic in their work, and have achieved what they believe to be remarkable results in the control of scarlet fever.

The medical literature between 1924 and 1932 furnishes us with observations on more than 50,000 susceptibles who have been studied for varying periods of time following inoculations with scarlet fever toxin. Among 18,453 susceptibles who were inoculated with approximately the technique recommended by the Scarlet Fever Committee and observed from 2 months to 5 years, only one person contracted the disease. To control institutional and community epidemics inoculations of toxin were given only to susceptible exposed persons whose throat cultures on blood agar were negative, whereas positive culture cases (those infected already, or carriers) were isolated and given antitoxin if symptoms developed. In the absence of symptoms at the end of a week these passively immunized cases were then inoculated with toxin.

Among 33,636 inoculated with doses and preparations not in accordance with the recommendations of the Scarlet Fever Committee, there were 163 who contracted scarlet fever during a period ranging from 5 weeks to 5 years. It was noteworthy in the latter group, that in spite of the inadequate methods of immunization used the incidence of scarlet fever was only 1/3 to 1/7 of that prevailing among the non-inoculated.

The most exacting test of active immunization is, of course, that offered by individuals who attend scarlet fever patients. Statistics from several hospitals seem to prove the efficacy of adequate immunization with scarlet toxin. At the Minneapolis General Hospital contagious department 181 of the staff received no toxin, were observed 6 years and developed 9 cases of scarlet fever. Six hundred and one of the student nurses received modified immunization with small doses of toxin or with Larson's toxin and 46 cases of scarlet, or 7% developed. Seventy-nine nurses received the large doses of Dick toxin and no cases developed.

At the hospital for sick children in Toronto, Canada, between 1918-24, of a staff group of 687 not given toxin, 6% developed scarlet fever. Between 1924-31 of a staff group of 845 given toxin, 0.4% developed scarlet fever.

Paul S. Rhoades of Chicago, one of Dick's followers, reports on the control of an epidemic of scarlet fever at Waterloo, Iowa. From October 1928 to March 1929, there were 803 cases of scarlet fever in a city with a population of 40,000. There were too many carriers to segregate by cultures. Dick tests and immunizations were offered in the schools and could be declined. Of an enrollment of 5,513, 2,041 received Dick test, 1,957 began treatment. Five doses of toxin according to the Dick method, were given. Four hundred and ninety-two finished the 5 doses, (a retest was made in 2 weeks, one skin test dose on right arm, and two skin test dose on left arm.) Those still susceptible, even if negative to the one but positive to the two, were given a sixth injection of 80,000 units. Of the 444 who appeared for retest, 92% were found immune. One hundred and two school children who had not been immunized contracted scarlet within 10 months—no cases occurred in those who had been immunized or found non-susceptible by the original Dick tests.

Figures such as the above make us pause and wonder whether we may not be on the right track in solving this problem.

The Dicks' conclusions after years of work are as follows: (1) That controversy with regard to the value of prevention of scarlet fever may have resulted from the improper preparation, dosage, methods and precautions previously employed in immunizing. (2) That errors in skin-testing and reading the tests may lead to false conclusions. (3) That small doses of toxin as first administered were entirely inadequate, a fact attested by the occurrence of many cases of scarlet fever following their use. (4) Ricinoleated and modified forms of toxin have not yet proved satisfactory in conferring immunity against the disease. (5) Large doses of pure toxin as recommended by the Scarlet Fever Committee have been effective in the control of institutional and epidemic scarlet fever for as long as 4 to 7 years after administration. (6) General reactions which are sometimes distressing but never serious occur in 10 to 20% of persons receiving pure scarlet fever toxin. Graduated doses of the pure toxin to the point of a negative Dick test are nevertheless warranted in view of the definite results obtained.

In the case of the Dick test—the technique of the test is exacting and the authors claim that mistakes may easily be made, not only in doing the test but in reading it. The toxin is diluted so that 0.1 c.c. represents a skin test dose. This exact dose is injected intradermally on the flexor surface of the forearm at the junction of the upper and middle thirds. The reaction is observed in a bright light not earlier than 18 hours and not later than 24 hours after the test is made. An area of reddening 1 cm. in diameter, or no reddening at all, is a negative test. Among the common sources of error are: inadequate syringes and needles; attempts to sterilize the syringes and needles with alcohol, which precipitates the minute amount of toxin in the test solution; failure to replace the water left in the needle after boiling, with skin test solution by expelling at least 0.1 c.c. of solution through each fresh needle used; boiling the syringes and needles in alkaline tap water instead of distilled water; estimation of the amount of skin test solution injected by the size of the wheal produced instead of accurate measurement by graduations on a syringe; subcutaneous instead of intracutaneous injection, and failure to observe the reaction between 18 and 24 hours after the test is made. The commonest error is interpretation of positive reactions as negative, because there is no induration, or only a faintly pink color to the skin.

New born infants frequently show negative skin reactions which become positive during the first year of life. The incidence of immunity to scarlet fever after early infancy depends on conditions that favor exposure to the disease. The most important factor in the spontaneous development of immunity is crowding, which favors the transfer of contagion and immunization through infection.

Reactions are minimized by the Dicks, and they have found no evidence of nephritis or other damage as a result of the immunization.

After perusing the literature on this subject and finding many favorable reports, not only from Dick collaborators but also from many other separate sources, I wrote a letter containing the following questions and sent to twenty well known pediatricians in this country:

I had sixteen replies:

1st question: "Do you immunize your infants and young children against scarlet fever in your private practice?" Fifteen replied, "No" and one replied, "Those who wish it."

2nd question: "Are you doing it in your institutional work?" Thirteen replied "No," two replied, that they were not connected with institutional work at present, and one replied, that he did it several years ago with the old method, and that he was planning to do it again this spring.

3rd question: "What dosage do you use in immunization," and there were no replies to this question.

4th question: "Do you have any severe reactions?" Naturally, fifteen did not answer this question. The sixteenth replied, "Not in the past."

5th question: "Do you have any statistics or any impressions regarding the length of time the Dick test will remain negative after artificial immunization?" Fourteen replied, "No." One replied, "There is no certain evidence in the literature that it remains negative for more than two or three years in a large proportion of the cases." One replied, "It is my impression that the duration of a negative Dick test after immunization is extremely variable. I have known a negative reaction to persist for two years and then become positive, and in other instances to become positive at the end of six months, all with the same material used for immunization and with the same dosage."

6th question: "Do you consider a negative Dick test a reliable indication of immunity against scarlet fever, or do you think a child might still develop a scarlet throat and other signs and symptoms without the rash?" The replies to this question were interesting and may be summed up as follows: Scarlet fever is a two-phase disease. One consists of an infection with a specific streptococcus and the other consists of a sensitivity to the growth products of that organism. What we know as scarlet fever when divorced from sore throat and infectious complications is merely an allergic reaction similar to serum sickness. The young infant does not have the disease because he has not yet become sensitized. The adult often does not have it because he has passed through the state of sensitivity to one of allergic immunity. The immunity to scarlet fever as it is generally discussed concerns only immunity to the allergic phenomena of this disease, particularly the rash. All the toxin one could give to an individual would not produce an immunity against the infection. Infections with this specific organism are exceedingly common without any suggestion of a rash or any other evidence of clinical scarlet fever. Though these are not usually identified and quarantined, they are capable of doing just as much damage as the person with the same infection who develops a

rash. A negative Dick test means that the individual is not at the moment sensitive to the toxic filtrate of the scarlet streptoccus. The individual will not develop scarlet fever when exposed if one includes a rash as a necessary part of the picture of this disease. But the individual can very well develop a streptoccic sore throat and many complications from this. Persistence in immunity after active immunization must depend on whether or not the individual has occasional repeated exposures to the organism. It is generally true that allergic immunity tends to disappear when the antigen is not presented for a long period. Thus in some cases the immunity persists and in others it disappears. Final question: "What are your chief criticisms, if any, of the use of active scarlet fever immunization in private practice, using doses as large as those recommended by the Scarlet Fever Committee?" The summing up of the answers here was as follows: Criticisms of the reactions that may be produced and the uncertainty of the period of the immunization. Also the fact that the mere elimination of Dick sensitiveness will not have any effect on the prevention of severe infections of the throat which may be followed by all the complications of scarlet fever and may be quite as severe.

After these uniformly discouraging replies as far as immunization is concerned, I wrote to Dr. George F. Dick, and asked several questions. His letter follows:

Dear Dr. Saunders: Replying to your letter. Your first question was, "Some investigators feel that the duration of a negative Dick test after immunization is extremely variable. What are your views regarding this?" Answer: The duration of immunity to scarlet fever depends on the degree of immunity obtained by immunization; this degree of immunity in turn depends on the amount of toxin administered. You will find that in some places where certain health department toxins are employed, the highest dose given is 3,000 skin test doses of toxin. On the other hand, you find that the last of the five immunizing doses distributed by commercial concerns in this country contains 80,000 to 100,000 skin test doses of toxin. With this information one can readily understand that the degree of immunity obtained by use of all five doses as distributed by commercial concerns in the United States would be very much higher than the degree of immunity obtained by the use of the smaller doses which are frequently employed by certain health departments in this country and by certain workers in Europe. The information I am now going to give you is based on results with five graduated doses of toxin distributed by commercial concerns in this country and consisting of the following amounts of scarlet fever toxin:

1st dose—500 skin test doses
2nd dose—2,000 skin test doses
3rd dose—8,000 skin test doses
4th dose—25,000 skin test doses
5th dose—80,000 to 100,000 skin test doses

Dick tests are made 2 weeks after the last injection—one skin test dose on one arm and 2 skin test dose on the other arm. If either of these is positive the last dose is repeated.

In groups immunized with this dosage, it will be found that about 95% have negative skin tests after immunization. Of the persons immunized to an entirely negative skin test more than 90% have remained immune for a period of 8 years. Statistics on longer periods are not yet available. Less than 10% need a second course of immunization.

Your second question was: "Do you think it is possible that a negative Dick test is only indicative of an antitoxic immunity, and that it is possible, and indeed, a frequent occurrence, that such individuals will develop a scarlet sore throat without rash, but possibly followed by any or all of the complications of scarlet fever?" Answer: The negative Dick test is not indicative of *only* an antitoxic immunity. It is *not* a frequent occurrence that persons with an entirely negative Dick test develop scarlet fever sore throat or complications of scarlet fever. It is true that persons with slightly positive Dick tests which have been erroneously interpreted as negative may develop such symptoms. The reason that slightly positive Dick tests are frequently interpreted as negative is because the physicians observing them are accustomed to observing the Schick test and they run a finger over the test to detect induration. Scarlet fever toxin used in the Dick test does not cause induration, consequently absence of induration does not justify interpreting a Dick test as negative. Also the custom of observing the Schick test 2 to 4 days after it is made frequently leads physicians to believe that they can make a dependable reading of a Dick test later than 24 hours after the test was made. This leads to erroneous interpretations; since the positive Dick test may be entirely faded if observed later than 24 hours after the injection was made.

Your 3rd question was: "If this is true how would you account for the control of epidemics in institutions by Dick-testing and immunizing? Would there not still be an epidemic of sore throats and scarlet fever complications?" Answer: The assumptions on which these questions are based have been discussed under question 2.

Your 4th question: "What type of toxin do you now recommend, with what doses, and what are the possible reactions? What about ricinoleated toxin?" Answer: The toxin and doses were described above. Ricinoleated toxin was of no value. The so-called "scarlet fever toxoid" recommended by Dr. Veldee is of doubtful value. Thus far there is no scientific evidence that any of the methods tried for "detoxifying" a scarlet fever toxin result in a useful preparation.

Your 5th question: "Do you feel that scarlet fever may be due to different strains of streptococci so that any toxin must confer immunity against all possible strains?" Answer: The hemolytic streptococci which cause scarlet fever are specific to scarlet fever. They differ in their cultural reactions and they differ in their agglutination but they all produce the

same toxin which is specific for scarlet fever. However all of the commercial scarlet fever toxin and antitoxin on the market in this country has always been obtained from several strains so that if there is anything to the suggestion in this paragraph, the commercial preparations as they are now made cover it.

There are two points which I would like to emphasize.

The first is that immunity to scarlet fever is a quantitative chemical reaction and that to ignore the quantitative nature of this reaction will always result in failure. Scarlet fever immunity as it occurs in nature is of every possible degree, ranging from no immunity whatever to complete immunity. It has long been observed that in an epidemic there are fulminating toxic cases of scarlet fever which prove fatal within a few hours, mild cases, and in the same epidemic, even in the same family, there are cases in which the symptoms are confined to a slight sore throat. It is possible by controlling the amounts of toxin injected to duplicate through artificial immunization all of these different degrees of immunity which occur spontaneously. One gets the amount of immunity which corresponds with the amount of toxin injected.

Also in attempting to treat scarlet fever, the amount of benefit derived depends on the amount of antitoxin injected and its quantitative relation to the amount of toxin manufactured in the patient's body.

The second point is that while it was at first difficult to convince scientists that scarlet fever is caused by hemolytic streptococci, it is now difficult to make some of them understand that every hemolytic streptococcus is not a scarlet fever streptococcus. There are at least two, and possibly several, other kinds of hemolytic streptococci which are capable of producing sore throat, sinusitis, otitis media and other similar conditions. One of these is the septic sore throat hemolytic streptococcus which is separate and distinct from the scarlet fever streptococcus. Another is the erysipelas streptococcus which is also distinct from the scarlet fever streptococcus. Just as one attack of scarlet fever which usually protects against subsequent attacks of scarlet fever does not necessarily protect against subsequent attacks of tonsillitis; so artificial immunization against scarlet fever can not be expected to protect against other types of hemolytic streptococcus infections which have no relation to scarlet fever.

Under separate cover I am sending you a reprint and chart which should be useful.

Very truly yours,

George F. Dick.

Thus we see that the question of scarlet fever immunization is still an open one.

Chairman Saunders: The next paper on the program is by Dr. Sylvia Allen, of Charlotte, and the title is "Epilepsy." Dr. Allen!

PAROXYSMAL DISORDERS

A Tentative Program for Clinical Procedure

SYLVIA ALLEN, M.D.

There is perhaps no phase of clinical pathology so inadequately studied and treated as the field of convulsive disorders, and perhaps no affliction which causes more unhappiness. Convulsions not easily explained are still too commonly diagnosed as epilepsy, and the inevitable treatment is bromides and luminal, with a vague promise that the convulsions will be outgrown in time. This paper is written for the purpose of outlining for practical use a fairly comprehensive procedure, based on the researches of the past few years and on the practical application of the results of these researches in twenty-five cases studied by the writer during the past year.

The consideration will emphasize the so-called "ideopathic epilepsy," in which no neurological findings can be made in periods outside of the attacks. The paroxysm is here considered as a symptom of some underlying process or condition. It is interesting to note that the recent Dr. F. Bates Block of Atlanta has listed eighty disease entities of which convulsions are a symptom, such as: trauma, neoplasm, encephalitis, meningitis, tuberculosis, syphilis, multiple sclerosis, etc. Let us accept as a definition a statement by Lennox and Cobb of the Boston City Hospital, the following: "At the present time we are inclined to view the convulsion as a normal mass reaction of the motor level involved, to an appropriate stimulus, when inhibitory release is obtained. Thus it seems to be similar to the tendon reflex excepting in its higher complexity."

In the writings of Hippocrates in 400 B.C. in regard to "The Sacred Disease" he makes the following prophecy: "But whoever is acquainted with such a change in men and can render a man humid and dry, hot and cold, by regimen, could also cure this disease without purification, and other illiberal practices of a like kind." A modern interpretation of this paragraph of Hippocrates' is given by Lennox and Cobb, as follows: "Whoever is acquainted with physiology and can render a man acidotic, dehydrated, and fully oxygenated could also repress this disease without minding purification of narcissistic personalities, ritualistic, empirical diets and all other illiberal practices of a like kind."

Thus, the three outstanding theories upon which most of the work is based may be expressed: 1. Changes in the fixed base minerals; 2. Supracortical edema; 3. Anoxemia. Most of the investigation and treatment is based upon these three conceptions of the predisposing or precipitating causes of convulsions.

Accurate history-taking in such disorders is unusually difficult, because so much fear and distress has been engendered. It will have to be modified many times. No history, however, will take the place of close observation over weeks, even months, preferably in the home at first, if the convulsions are not too severe for such deliberation. Later, hospitalization becomes

extremely valuable, but one cannot put enough stress upon early observation in the home, where the environmental factors with which the patient must live are to be discovered. Also, no description of the actual convulsion itself can take the place of observation. Only gross localizing signs are observed by the family. The diagnosis will be greatly facilitated by a clear-cut understanding (derived from the accounts of the family and patient, plus the observations of the physician) of the aura, or associated sensory signs, as well as of the exact order and extent of the motor appearances and the psychological coincidences of the attack. Even when such signs and symptoms fail to be of focal significance, it is important to continue observations. A certain French case of Baruk's in *Encéphale* for January, 1931, evidenced by a Jacksonian Epilepsy associated with migraine, finally proved to be a brain tumor.

After the usual careful routine physical examination, with the removal of toxic factors and reflex sources of irritation, the search for etiology becomes an intriguing one, for upon it depends the entire therapy. The elimination of gross brain and spinal cord lesions as well as of all toxic factors leaves one in the mysterious realm of that wonderland of fantasy called idiopathic epilepsy.

It is wise, perhaps necessary, to precede the detailed work-up by some sort of estimate of the intelligence of the patient, not only to know what degree of complexity the treatment may assume, but also to know the amount of coöperation to be expected. The average practitioner has no time for the giving of a mental test, but in a neuro-psychiatric office, this must be a routine procedure. The Binet-Simon Intelligence Test is a good indicator, and will be corroborated or refuted by the developmental history. Signs of early deterioration may often be detected by such a test. Also, if the psychiatrist himself does the testing, much of value can be elicited as points against which to check for either mental growth or deterioration in the future, and much of value as to special abilities and disabilities of the individual patient can be discovered, knowledge of inestimable value in the psychological readjustment to be made by the patient.

Too often a neurological examination consists of a few taps with a reflex hammer and the flash of a light on the pupils. These are good tests as far as they go, but careful studies of the dermatones, with tests for anesthesia, changes in pain, touch, temperature, etc., may bring out some brain or spinal cord pathology which may make the diagnosis definite without further elaborate procedure, and may keep it out of the difficult but more hopeful realm of ideopathic epilepsy. Le Fever and Means, in the *American Journal of Surgery,* write on encephalographic studies in epilepsy to the effect that pathological lesions responsible for the convulsive state may be disclosed by encephalography, the technique for which was introduced by Dandy in 1919. Hitherto such pathology could have been disclosed only by operation or upon the autopsy table. However, this procedure is usually considered too dangerous unless a

neuro-surgeon is within call for any emergency which may be precipitated by the process.

The inheritance of epilepsy has been inadequately worked out. However, Davenport, Weeks, Baur, Fisher and Lentz look upon it as a recessive Mendelian trait, and all writers on the subject agree that there is some definite hereditary factor, though many of them confuse the issue by speaking of "taints," indicating a general neuropathic inheritance, showing such traits as alcoholism and feeble-mindedness associated with epileptic inheritance. Gates quotes Brain in his study of some two hundred epileptics, in which he finds twenty-eight per cent of the cases with a history of epilepsy in the family. He states that it is a recessive trait and that five per cent of the children of epileptics have epilepsy. He stresses the fact that it is difficult to be sure whether it is acquired or congenital in the parent. The agreement seems to be that the incidence of the disease is about 0.85 of one per cent of the general population. The family history is well worthy of a careful study from the point of view of diagnosis.

When there is, then, no structural basis found upon which to make a diagnosis for convulsions, the investigation becomes two-fold: physiochemical and symbolical or psychic, both of which bring into the field the need of constant consideration of the endocrine and the sympathetic nervous system, so vitally concerned in the sensitive balances of the mind and body. It is the patient himself to be treated then, and not merely the seizures.

Most of the research of the last few years has centered around the physiochemical studies. As a result the general agreement is that the supracortical increase in fluid stands as the preëminent condition precipitating seizures, and that defects in the fluid management of the body is the point of difference between the epileptic and the non-epileptic. Dandy, in an article in 1923, stated: "It is mainly at operation that dilation of the subarachnoid spaces is demonstrable. . .there is hardly anything more striking than the collections of fluid which cover the surface of the brain of the epileptic. They stand out almost as sharply as tumors on the surface of the brain." Temple Fay is the outstanding exponent of the theory of supracortical edema. It is interesting to note that Foster Kennedy in 1923 actually witnessed a brain at operation during a convulsion. He saw a sudden blanching, followed by a tremendous venous engorgement, with protrusion of the brain beyond the level of the operative defect.

Although it is a doubtful fact that the cerebro-spinal fluid is under pressure in a status epilepticus, spinal puncture may give immediate and prolonged relief. Lennox and Freemont-Smith find no increase in spinal fluid in an epileptic who drank one thousand c.c. of water rapidly, nor in one who drank two hundred c.c. every half hour to twelve hundred c.c. Hypotonic solutions by mouth, hypertonic solutions by vein and

rectum, and saline cathartics acts as dehydrating factors in these emergencies, proving the theory of over-hydration, at least preceding the attack.

However, these emergency measures must then be followed up by restriction of fluid intake in the regular diet, for the first day or two as low as five hundred c.c., gradually increasing to one thousand c.c. or more if the patent shows excessive thirst, the drawn look of dehydration or jaundice. The urinary output is then measured, and should be less than the intake by a few ounces, if possible, to allow for the skin, lung and rectal output of moisture.

With the low fluid intake, the patient is put also on a low carbohydrate diet for the metabolic influence on fluid balance. Lusk, in his book on nutrition, notes that it is a significant fact that when the body changes from a carbohydrate diet to one of fat or protein, there is a considerable loss of water. The storage of fluid in the "interstitial" spaces is dependent upon fixed base sodium, and with the loss of the fixed base there is a rapid loss of water from this part. This is affected in carbohydrate metabolism, since the cells require approximately two-thirds more fluid for carbohydrate metabolism than they do for protein metabolism. So far, no case of status epilepticus has gone through our hands which we have been unable to relieve by spinal puncture, catharsis, and the use of fluids. However, so many of the twenty-five cases handled have required more than a simple dehydration routine to control the seizures. In these cases diuretics have been used. Theo-calcin tablets, seven and one-half grain, containing calcium and theobromine sodium salicylate (Bilhuber-Knoll Corporation) have been very useful, three times a day, often adequate in smaller quantities.

Into this theory of changes in mineral content of the body fluids comes the finding of hypocalcemia and hypoglycemia in certain convulsive cases. Laboratory tests for calcium and sugar are always in order, during attacks and between. Inskeep reports ten cases of ideopathic epilepsy studied as to fasting serum calcium, eight of whom showed a calcium content of 7.9 to 9.4 mgm. per 100 c.c., all of whom responded favorably to doses of thirty to sixty grains of calcium gluconate a day by mouth, with cod liver oil to increase absorption. The blood serum calcium was studied from time to time, and results were favorable when it reached a concentration of eleven and convulsions ceased at twelve. Recent studies show a low cholesterol content which may account for the failure of calcium absorption, and which is worthy of closer investigation, suggesting some value from ultra-violet rays in therapy.

The period of hospitalization is the time for regulating the fluid balance and for setting up the diet. In all severe cases, it is well to use both treatments, beginning the dietetical regime with a week of fasting. The strict ketogenic diet for producing acidosis is impossible with unintelligent and very poor patients. When used, the patient, except in rare cases, does not need to stay on the strict diet indefinitely, but after three to twelve months may remain convulsion-free without actual ketosis, yet may later

have to return to it for a period. Most patients, however, must stay on a low carbohydrate, moderate protein and high fat diet. The caloric requirements are first calculated, using the DuBois standards and adding twenty-five to thirty-five per cent to cover the energy dissipated in the day's activities in cases of children, and perhaps in the case of adults, allowing about 85 calories per kilo of weight. The carbohydrate is kept at about ten to twenty gm. a day, the protein at about one gm. per kilo of weight, and sufficient fat to meet the full caloric requirement, producing a ketosis by keeping a ketogenic-anti ketogenic ratio of about four to one. After a good balance is set up, and the urine shows ketone bodies and the carbon dioxide combining power of the blood an acidosis, the carbohydrates and proteins may be gradually and carefully increased to a more palatable level and a safer amount of protein.

Careful attention must be paid to the vitamin and mineral content of the diet. For the first three months it is a rule in the management of our cases to keep a small amount of cod liver oil and brewer's yeast in the regimen. Fruits and vegetables assume as high a place as their bulk will permit. In cases in which the plan for dehydration plus the production of ketosis is not sufficient to control the seizures, it becomes necessary to look to the sodium chloride (table salt). At times a salt-free diet, or a salt-poor diet at least, is necessary.

It is clear that in the attacks one witnesses a certain amount of air-hunger, and often, cyanosis. The theory of anoxemia has been pretty well established. So far, we have had no occasion to resort to increased oxygen for the patient, but animal experimentation indicates that the re-breathing of carbon dioxide and the increased oxygenation are both productive of the termination of the seizure. However, the question remains, is the asphyxia a result or a cause?—a question which might be asked in many of the findings in the epileptic seizure. The spasmodic upheaval must make great demands upon the oxygen of the tissues.

Up to the present there has been nothing of value of a definite nature in endocrine treatment of idiopathic epilepsy. In certain cases gross endocrine dyscrasias have shown associated convulsions as symptoms, and are relieved by endocrine treatment, especially those associated with the pituitary and thyroid glands. The treatment is nearly always multiglandular, however, rather than specific. Studies on basal metabolism in a series of twenty-five epileptics by Topper and Mulier in New York showed minus readings, which they interpret as an effect rather than a cause.

The question of allergy as a causative factor in idiopathic epilepsy is still an intriguing one. Spangler studied one hundred consecutive cases of adult epilepsy from this point of view, finding eighty per cent with a history of allergy, gastro-intestinal allergy standing out preëminently. He considers angiospasm an important factor, and believes that an hereditary defect is back of it and is transmitted from either parent, but contends that the type of allergy may vary. There were eleven cases of epilepsy,

thirty-five of asthma, seven of hay-fever, fourteen of urticaria, six of eczema and six of migraine in his one hundred cases. Klein, of Chicago, believes that the convulsion resulting from allergy may be an alkalosis caused by the asthma, or the asthma and the epilepsy may both be due to the underlying allergy. His treatment is calcium, epinephrin, bella-donna, sodium thiosulphate and desensitization. (See Lumiere's work.) Skin tests are in order in every case of chronic convulsive seizures.

Of our twenty-five cases in 1933-1934, eight were clinical cases with all sorts of neuropathic symptoms, feeble-mindedness and associated stigmata, with many positive Wassermanns. The treatment in such cases with poverty had, of necessity, to follow the lines of sedatives, low fluid intake, psychological adjustments, and the treatment of the syphilis. Only one of these 8 cases could be considered idiopathic epilepsy, and he has been convulsion free on calcium, low fluids and a regular job.

Of the seventeen office cases, five came under the rather desperate head of the above cited clinical cases, with all sorts of neuropathic inheritance and bodily stigmata. Two were psychotic, and all five showed deterioration. Two were recommended for institutions, one was managed at home; one treated for syphilis and pellagra, and one partially controlled by sedatives. Two showed purely psychogenic convulsions, and two showed incomplete diagnosis with focal signs indicating a possible early brain tumor. One came to operation for brain tumor and an oligodendroma of the medial wall of the left ventricle was found.

Six of these carefully worked-up office cases might be called idiopathic epilepsy; one preëminently endocrine in origin and one presenting severe epileptic furor at fifty-four years of age preceded by only one seizure. The five remaining cases are all more or less under control for the present, symptom free for the last two to three months on low fluid intake, a modified ketogenic diet, calcium, diuresis, and with careful adjustment of their psychological problems. We might say then that only seven out of the twenty-five could be called idiopathic epilepsy, and of these seven, multiple causes have been found to explain their seizures.

In closing, attention is drawn to a recent article by Freemont Smith on the importance of emotion in precipitating convulsions, in which evidence is brought forward to show that the emotion acts through the stimulation of the sympathetic nervous system. Of all phases of convulsive research in medicine, the psychological factors have assumed the least importance. One has had to read pure Freudian literature until recently to find any emphasis on this subject. It is the belief of the writer that fifty per cent of the success in the control of convulsions in the seventeen carefully worked-out cases of the twenty-five in the past year has rested on three important psychological factors: first, suggestion; second, the improved adjustment of the individual in his life-scheme; and third, and most important, perhaps, of all, the education of the individual in his own self-management and self-control. To put the patient on a ketogenic diet with dehydration is a big discipline. To hold to it,

demands no little exercise of will. Attention is directed to the concrete, thus relieving self-centeredness, and hope is engendered. The sick ego of the individual begins to find reason for raising its head, and fear begins to fade into space. The socializing process is recommenced. New interests are built in the life. Self-confidence is increased. Such practical suggestions as instruction in the use of cosmetics, improvement in dress, a permanent wave are often of more value than all the medicine which the druggist offers. Approbation wisely used and the sense that someone is interested make for less need for the so-called "flights from reality" which the convulsive seizure offers to the patient.

DISCUSSION

Dr. John R. Ashe (Charlotte): Dr. Allen has given us a very good outline of what we should do when a child with convulsions is brought to us. I am sure I cannot add anything to that.

I have been very much interested for a number of years in the new things that have come up helping us to understand the causes underlying the convulsive state and the therapeutic procedures based thereon, with the changes in water balance and mineral balance. Needless to say it has been very difficult for me to understand them. What Dr. Allen has said about psychology and psychiatry in these cases makes it all the harder for us who you might say are in the front line trench in pediatric practice.

From what I can gather from the literature with respect to these methods of treatment, dehydration, etc., we expect about one-third of these children to be cured and about one-fourth of them to be improved; and with the straight dehydration therapy the results are probably a little less encouraging. I would like to ask Dr. Allen what results we should get in using these treatments on children who have had actual pathology consisting of intercranial hemorrhages or anything else that might occur after birth.

Dr. McBryde (Durham): I am very much interested in the psychological treatment of the patient. There are a few other factors which she brought out very clearly which it might be well to stress at this time, one especially. In children in the State of North Carolina we find that the degree of mental deficiency is so high, or mental deterioration is so high, that a very small percentage of them are amenable to any of these types of treatment. That is, when they come to see us they have the disease several years, and some of them are feeble-minded to begin with, and a great majority of them are feeble-minded by the time they are put on the treatment.

The next thing is that in the institution of various measures, such as dehydration and the ketogenic diet, so many parents are mentally incapable of grasping the necessity of limiting fluid sufficiently, or the more drastic use of the ketogenic diet in these conditions. Personally, we have had much more success with the use of the ketogenic diet than we have had with the limitation of fluids in these conditions.

There is one point which I believe she did not stress, but which she mentioned, and that is the fact that the gastro-intestinal influence is so often present in these cases. We have seen several patients in whom the convulsions have ceased with the continued use of mineral oil. You will see a child from time to time in whom the convulsion will seem to occur entirely in conjunction with constipation, and I think this an important fact to remember as far as the ketogenic diet is concerned, most of this action as far as we know apparently is entirely in relation to the loss in body fluids. In the institution of this diet I think a point that should be stressed is the necessity for having the patient in the hospital. Second, the need of a period of fasting in which the child should lose in the average, from six to twelve, one to two kilos in body fluids, and the maintenance of that for three to five days.

I don't think, however, that the ketogenic diet or the dehydration treatment will be of great value in more than 5 per cent of the epileptic children. In so many of these cases we have seen we are forced to turn to our old drugs, especially luminal to control convulsions in these rather feeble-minded children and parents who have neither the economic ability nor the mental ability to use the other measures which we can use, especially the four to one ketogenic diet.

Dr. N. C. Daniel (Oxford): I should like to ask Dr. Allen a question. I do not treat much epilepsy, but I am responsible for the health of about six hundred institutional children. I have noticed in my family histories that the children who have epilepsy are generally irrational and irritable—as old Dr. Flint has said, subject to brain storms. I wonder if she has noticed that in her observation.

Dr. E. M. Poate (Southern Pines): I am sorry that I was not here to get quite all of the paper, but I was here for a good part of it. I don't think that Dr. Allen mentioned the fact that it is very necessary to institute treatment quite early if one is to get good results. There is apparently the development of a convulsion habit. The tracts, motor tracts, which are irritated and explode resulting in the convulsion seem to develop definite changes, which make any slight irritation likely to produce a fit. Of course, that convulsive tendency is seen in many children, whether they have teething convulsions or fits from a safety pin, etc., but in using the ketogenic diet and all those other things in institutional treatment the results have been much less satisfactory than in private practice. I forget who it was, but somebody reported a long series of institutional cases in the *American Journal of Psychiatry* last year where the ketogenic diet and the reduction of fluids were used with very unsatisfactory results. It is true always that the longer they have had them, the harder it is to do anything with them.

One more word, I am inclined to think that some day idiopathic epilepsy will cease to exist. The epilepsies are in series ranging from purely psychogenic, hysterical reactions right down through to the obviously organic conditions. The true grand mal seizure is a true organic seizure,

and is a type one seizure in paretics. Sometimes the only gross clinical symptom will be the convulsions. I think in every case where there is a positive Wassermann the possibilities are that the case should not be regarded as idiopathic but as brain syphilis. I believe that some day when the effects of allergy and the various endocrine disturbances and changes in biochemistry have been properly estimated, we will no longer speak about idiopathic epilepsy, but will classify the cases as psychogenic, or as depending upon some change in the body chemistry, or as being due definitely to early organic disease in the brain. (Applause)

Dr. Aldert S. Root (Raleigh): In recent years Dr. Sellarius, Dr. MacBarry and a number of other writers have apparently found that in a good many of these cases that were considered to be idiopathic epileptics, there was a low blood sugar, hypoglycemia, and that by instituting the administration of carbohydrates at the appropriate time these individuals were cured or were relieved.

We have had several of these children ourselves that we have treated along that line. One child that was brought to us had frequent convulsions. We had the child in the hospital in order to get his blood sugar at that particular time, because unless the blood sugar is taken during an attack, it is not worth anything. During the attack the blood sugar in this case was found to be very low. We found it contained 60 milligrams per 100 c.c., which was pretty low. These attacks came on early in the morning, about three or four o'clock, and by waking the child up an hour or two before that and giving it some candy or some lumps of sugar this child apparently has been relieved. We have had several of those cases. Also there have been many of such cases reported, and I would like to ask Dr. Allen and Dr. McBryde what the result of their blood sugar determinations have been in these cases that they have studied.

Dr. R. S. Anderson (Rocky Mount): I am very much interested in the ketogenic diet for epileptic children, but there are two factors that I think we ought to bear in mind. I am referring to local manifestations. Sometimes these convulsions are caused by little things like phimosis, parasites, or other little things, which are very simply remedied, and which we might easily overlook.

This was very forcibly called to my attention a short time ago, particularly in one or two instances where children who had epilepsy were relieved. I discovered that they had seat worms, and by giving them local treatment for these parasites they seemed to improve. That is the reason I arose, to bring this to your attention. I feel in children the local causes ought to be thoroughly investigated and considered.

As far as the ketogenic diet is concerned, I am very much in favor of it. Dr. McBogert, I presume, has done as much work on that as anybody in the country, and I am sure that it is a great facor, but I believe if one will investigate he will find that the local manifestations are extremely important in clearing up a simple epilepsy.

As regards the medical treatment, I don't know anything about it. I have just run into a few cases where I was able to give relief by clearing up these parasites, and that is the point I want to bring to your attention.

Dr. Sylvia Allen: That was a very kind discussion. In regard to the question that Dr. Ashe raises as to the results with people having actual pathology, it seems to me that in this day and time we have to exercise a great deal of care as to what we shall or shall not do, and with twenty-four hours a day to live we have got to pick the most hopeful, so I will have to admit that I have not worked very hard on the feeble-minded children with congenital brain malformations.

Answering the question that Dr. Poate brings up, I didn't mean, Dr. Poate to throw off the fact that this tainted type of inheritance is back of these epileptic people. I only meant to say that we should not take their findings too accurately in what they say about their inheritance factors. Yes, more work needs to be done. Instability is there in many ways, and it shows itself in the families.

I am so glad that early treatment was emphasized.

I agree as to what has been said about idiopathic epilepsy, and the use of the term is dying out to a considerable extent.

As to the nocturnal type of epilepsy, I have not had a single one of those cases. The figure that was given of 60 is not uncommon to see, but as to that nocturnal type of epilepsy of course the Freudians would say that the individual was most under the influence of the subconscious about that time of morning and the subconscious psychogenic factors were at work.

In regard to the hospitalization, I still contend that that brief period of observation in the home before you use the hospital will make your period of hospitalization count for ever so much more because you know more about their habits, about their home conditions, about their family, etc., the irritative reflex factors. I am glad the discussion brought out what I was trying to show, the multiplicity of causes.

Chairman Saunders: The next paper will be given by Dr. Jean D. Craven on "Hirschsprung's Disease."

Dr. Jean D. Craven (Durham): Although there were three or four descriptions of this disease in the early literature, Hirschsprung gets the credit for the disease that bears his name for he first gave an adequate description in 1886, at a meeting of the Berlin Congress for Children's Diseases. Hirschsprung called the disease congenital idiopathic dilatation of the colon. That name and the criteria that he has laid down for it have persisted without many changes and without much question until today. It is really a disease of congenital high grade dilatation of the colon, associated with hypertrophy and thickening of all the layers of the colon wall, especially the tunica muscularis, and retention of large quantities of fecal matter resulting from some interference with normal peristaltic

function of that colon. Hirschsprung definitely excluded any dilatation that was the result of a mechanical obstruction.

There has been much discussion about whether the dilatation is the only congenital factor, and whether or not the hypertrophy is a primary or secondary factor. I think it has been pretty well proven now by rather complete pathological studies that have been made on still-births and children who have died at a very early age, shortly after birth in fact, that the hypertrophy is present at that time in the same degree as it is in later life, illustrating fairly conclusively that the hypertrophy is part of the congenital disease and is not a secondary factor as a result of the dilatation.

Hirschsprung himself, and all the studies that have been made of this condition since that time, have eliminated all that large group of cases where there is dilatation and hypertrophy of the colon behind a mechanical obstruction. It is a disease without mechanical obstruction. Of course, that makes it pretty difficult to differentiate it from some of these other conditions, but the true Hirschsprung's does not have any mechanical obstruction.

The cardinal symptoms of the disease as Hirschsprung laid them down, and as we still know them, are a very large, distended, protruding abdomen, which the child has from birth; constipation that has been particularly obstinate, some children having periods as long as two or three months when they have not had a bowel movement; then the tremendous dilatation of the colon associated with marked underdevelopment and malnutrition as a rule.

Differential diagnosis of this disease from other conditions producing large abdomens is fairly simple so far as abdominal tumors and tuberculous peritonitis are concerned. However, X-ray examination of the colon is often necessary to rule out this large group of cases that I have told you about where there is dilatation of the colon with some type of mechanical obstruction or some other cause producing a large abdominal enlargement without tumor formation.

The treatment of this disease has gone through a great many phases. Lowenstein reported 59 cases that had been treated medically with a mortality of 66 per cent, and 44 cases treated surgically with a mortality of 48 per cent. That is not a very good choice either way. The medical treatment consisted of diets, exercise, massage, abdominal supports, enemata, rectal instillation of oil, laxatives, tonics, atropine, and thyroxin, as well as parahormone, and there were various claims made for all of them. The surgical treatment has consisted of almost every kind of operation. Some of them are intestinal puncture, colotomy, colopexy, coloplasty, enterostomy, appendicostomy, colostomy, and the more radical ones are total colectomy, ileosigmoidostomy, and enterostomy with resection. The radical operations proved more successful than any of the others especially when they were done in three stages, keeping an ileostomy open until the anastamosis and resection were complete. Of

course the great disadvantage in all of these radical resections is this, that a small amount of the colon has to be left in no matter what type of operation is done, and that part that is left in is still as atonic as it ever was, and although they can't collect the fecal impactions that were as large as they previously had, they at least have that definite obstruction and do have a collection of fecal impactions, so they are seldom able to get along without the use of cathartics.

For the next advance in our understanding of this disease we are indebted to the surgeons. Royle was the first to observe that obstinate constipation can be improved by interrupting the lumbar sympathetic connections, in some types of atonic constipation. He made that observation on an adult without Hirschsprung's disease, and it was immediately after his publication that a great many people began to see that the use of that same principle in Hirschsprung's disease might prove to be a very satisfactory mode of treatment, and of course they went then to the physiologist to find out something more about the actual sympathetic and para-sympathetic innervation of the large intestine. Sollman has done a great deal of work on that subject, and he has proven pretty definitely, as well as many of these other physiologists, that the sympathetics inhibit both the contraction and peristalsis of both the large and the small intestines, and that they produce contraction of the rectal sphincter. Thus the lack of tone in the large intestine, plus an abnormally contracted rectal sphincter, gives a perfect setting for intestinal stasis.

Judd and Adson performed the first operation of sympathetic ganglionectomy and ramisectomy on a patient with Hirschsprung's disease, and they had excellent results with this first operation. There have been 29 operations of similar type performed since then with good results in all but four cases, which is an 87 per cent recovery, which is a great improvement over this 66 per cent mortality that they had in other types of operations.

This work the surgeons have done has opened up an entirely new medical approach to this problem for the use of drugs that have a stimulating effect on the para-sympathetics. Pilocarpine, physostigmine and acetylcholine are in that group. They can be administered and will produce good results in stimulating the para-sympathetics and producing peristalsis. However, some of these drugs have undesirable side actions. You are all familiar with the powerful diaphoretic action of pilocarpine, which make it a drug undesriable to administer over a long period of time. In two of these cases of true Hirschsprung's disease that we have had, I have been interested in treating them with pancreatic tissue extract. Pancreatic tissue extract is a non-insulin-containing extract that is para-sympathetic in its action. It had previously been used only in cases of cardiac complications like angina pectoris, and it was used entirely for its vaso-dilator effect. I have used it on two boys with Hirschsprung's disease hypodermically, and you can give it in doses from ½ to 1 c.c. about fifteen minutes before meals. Of course, the great disadvantage is the same d's-

advantage insulin has, it has to be given hypodermically and children object to it. It is an extract that has been standardized by its epinephrin effect on the blood pressure. That is done in dogs, but in therapeutic doses it will produce peristalsis. There is no danger at all of lowering the blood pressure of the patients, at least it won't lower it if the patients have a normal blood pressure; it does if the patient has hypertension.

We found an interesting way of studying these cases and seeing whether they were making any progress or not, besides observing whether they had bowel movements or not. I want to show you how we found that you could give these patients a 10 per cent emulsion of barium in oil, a small amount daily by mouth, and then at any time you could observe your patient under the fluoroscope or you could get an X-ray. The barium sticks to the wall of the intestine, and gives you sort of a contrast type of picture. Then we took these children up at different times and put them under the fluoroscope, and would give them different drugs and watch the action of the drugs. The tissue extract within three minutes after injection would produce very marked contraction of the intestine in the large as well as small intestine, and it would follow through whole segments, and then another rhythm would come through.

I have been interested, after studying these two patients, in just what the effect of this drug would be on the intestine where you could watch it directly. In guinea pigs you can open the abdomen and have the intestines exposed and carefully guarded by sponges with salt solution and give this tissue extract to them, and you can watch the contraction. It is very marked.

Then I did some work on isolated strips of intestine. You get immediate contraction of this type in isolated strips of intestine, and after this contraction has been maintained for a short while it becomes rhythmical. That shows this extract has an added advantage over producing merely contraction. Some of these other para-sympathetic drugs produce contraction, but do not increase the rhythm, and just a spasm or an extreme convulsion is not all that is necessary to produce normal peristalsis in normal evacuation. So this drug has both of these factors. It has been used in the adult serious atonic constipation cases, not Hirschsprung's disease, and we have had rather striking results. Some of these patients are now having daily bowel movements, which they have been unable to have for years. Our patients with Hirschsprung's disease would have daily bowel movements and have no collection whatever of feces in their intestines, which they had always had previously.

DISCUSSION

Chairman Saunders: Thank you, Dr. Craven. The discussion will be opened by Dr. Bugg, of Raleigh.

Dr. C. R. Bugg (Raleigh): Mr. Chairman and Members of the Section: This discussion is largely a formality inasmuch as my one case of Hirschsprung's disease is not quite enough on which to base any real

knowledge of the disease. I simply think it is an opportunity to say how tremendously interested I am in the work Dr. Craven has done. I understand that the work with the tissue extract is an original thing on her part. Certainly what perusal of the literature I did indicated that the newest thing was the sympathectomy, and I first knew today that Dr. Craven had been doing this work. It seems a tremendous contribution.

I would like to ask her to tell us a little more about its possible uses in those cases that are not true Hirschsprung's disease. Of course, we will have to assume it will not be very useful in those cases that have an organic obstruction, but I imagine that cases of very marked loss of tone of the intestinal musculature could be helped by its use.

Also I would like her to tell us how long she had to continue the tissue extract in these cases of Hirschsprung's disease, whether they reached a point at which they developed an inherent increased tonus of their own or tendency to rhythmical contraction so she was able to reduce the dose or discontinue it altogether.

Dr. S. F. Ravenel (Greensboro): I think that this work of Dr. Craven's is exceedingly valuable and certainly exceedingly original, and it appears that it is going to have a very practical bearing on handling these rare but difficult cases. And I think she should be congratulated both upon the work and upon the delightful way in which she presented it.

Dr. K. P. Turrentine (Kinston): There are very few of the men here I imagine who ever see this rare condition outside of the hospitals that we visit, but there are a whole lot of us that see tympanites in pneumonia, and we have worried a great deal about it. I don't like to get Dr. Craven off her subject, but I would just like to know if that particular extract has been used in any of these other related conditions.

Chairman Saunders: Is there any further discussion on this very interesting paper? If not, Dr. Craven, will you close the discussion, please?

Dr. Jean Craven: In answer to Dr. Bugg's question about what this extract will do for other conditions of atonic colon, I have used it on only one patient besides those who had Hirschsprung's disease, and that was where we thought first it was a true Hirschsprung's disease, but instead there was a mechanical obstruction. That child took the extract while he was in the hospital for a period of about three weeks. He disliked taking the injections tremendously so we were pretty sure if we sent him home he would not take it, so we sent the boy home on just a regimen of taking nothing but mineral oil once a day. It is now eighteen months since he went home, and I saw him just last week. He has gotten along extremely well, has had no impactions at all during that time, and has had daily movements. He is not, as I say, a true Hirschsprung's disease, but apparently his intestines were stimulated considerably by the two or three weeks of treatment. The family have been greatly pleased by his condition, and he has grown considerably.

The only other cases on which it has been used have been in the adult service on long standing atonic constipation conditions, and the cases are too few to report at this time. How long it has to be used I am not sure. This one boy took it for about three weeks, and he has been much better since then.

There is another child that had a true Hirschsprung's disease who took it in the hospital for two weeks and improved, and went home and took it for four months at home and was entirely symptom free while he was taking the extract. Since the drug has not been taken the child has not been as well, but is not as bad as he was before he took it. He has had to have some type of enema or laxative, but he has not had the impactions that he had previously.

The doctor who wants to know about the use of the extract in tympanites in pneumonia, answering him, I have not used the tissue extract, but a great many use eserine, which is a parasympathetic drug that works in exactly the same way as pilocarpine, physostigmine and acetylcholine. No doubt, this drug would work the same way as eserine does.

Answering the doctor in regard to surgical treatment of this disease, I have already stated that I wished to give the surgeons credit for the advance made in the treatment of this disease through the medium of surgical procedure by the use of a lumbar sympathetic ganglionectomy and ramisectomy. Their results are certainly excellent. I gave the report of an 87 per cent recovery. However, there is this disadvantage about the surgical procedure: I had one patient that I tried to get to submit to a sympathectomy, but when the operation was explained to the parents and it was found that it meant going through the anterior layer of the peritoneum, all the way up and down both sides, they decided they would not have him operated on. Of course Dr. Rankin and Dr. Hermount, that he has quoted, reported one case in which they went in and did a ganglionectomy and ramisectomy, and they missed one of the ganglion and some of the rami communicans, and their patient was relieved in the sense that in the part of the colon supplied by the nerves they had cut was non-active, but there was one part that was still atonic due to the fact that the operation had not been complete. However, they did a second operation and got the ramisectomy, and the patient was improved. I think that which was entirely successful, and the patient was improved. I think that might be developed through drugs a little further. (Applause)

Chairman Saunders: The next paper will be entitled, "Stimulants—Useful and Otherwise," by Dr. John LaBruce Ward, of Asheville.

STIMULANTS—USEFUL AND OTHERWISE

By John LaBruce Ward, M.D., Asheville, N. C.

The followers of Aesculapius have, from ancient times, sought to keep the grim reaper at bay by using certain drugs supposed to sustain failing respiration and circulation. The mere enumeration of these would consume

more than the allotted time for this paper which has to do with the indication for and evaluation of certain drugs which supposedly have a stimulating effect on the circulation, the respiration or both. Abt voices the opinion of most pediatricians by saying, "Stimulants are quite essential in the treatment of diseases of children but they should be used only when indicated and not throughout an illness." No one can question the usefulness of certain stimulants in an emergency but we are firmly convinced that their use q 3 h. in a prolonged illness does little but satisfy the mother. In many instances the drug so given has a very fleeting action so that the stimulating effect, if any, is operative at intervals only which has aptly been described as kangaroo therapy but which, perhaps, is well for the patient. The criterion of the results of such therapy is not the temperature curve or yet the respiratory or pulse rate but the improvement in the general condition of the patient as manifested by his appearance, his ability to retain food and the proper functioning of his vital organs. A rapid pulse in a young child means little and, unless taken during sleep, means nothing. Heart irregularities and dropped beats occur in health. The drugs most commonly used as stimulants are alcohol, adrenalin, camphor, caffeine, digitalis, strychnine and, latterly, alpha-lobelin. Concerning alcohol, Griffith has this to say, "That it is able to do much good in certain conditions seems so well supported by the clinical experience of the centuries that it is difficult to controvert this by the apparent results of physiological experiments," while Morse summarily disposes of the question by stating that it is not a stimulant. On the other hand, Thomson and Still believe that in many cases of pneumonia it is advantageous, and Sir Humphrey Rallston says that alcohol used in acute diseases causes increased degeneration of the myocardium. Feer also warns against its use in pneumonia. A ban has been placed on this popular agent by this Society—so far as patients are concerned. Not a few of its members obey the biblical injunction, "Drink a little wine for thy stomach's sake and for thine oft infirmities." Much experimental work tends to prove that camphor and strychnine do not deserve the popularity so long enjoyed. Hyman and Fenichel claim that strychnine has no effect on the circulation and may cause toxic nervous symptoms. In order for a drug to be of value in acute or chronic circulatory failure it should exert a demonstrable effect on the pulse rate and blood pressure and particularly on the output of the heart. The essential function of the heart is to pump blood. Wilson, Harrison and Pilcher, after numerous experiments with dogs, conclude that camphor has no value in the treatment of patients with circulatory disease and that the value of strychnine is unproven. While the effect of a drug on a laboratory animal does not necessarily find its parallel in the human, the deductions of these workers is justified in a critical study of the action of these drugs on the human by many observers. Jackson in discussing chronic myocarditis, states, "It is doubtful whether strychnine is of any value," and Fenichel, (after studying an unselected group of 100 medical histories in the medical department of the Montefiore Hospital), says

he is convinced that it is inert. Marv'n and Soifer made an elaborate study as to the effects of camphor in oil on fourteen patients with congestive heart failure and on two normal persons. Observations included: (a) rate of heart and character of murmurs, (b) blood pressure, (c) vital capacity as determined by the Sanborn spirometer, (d) rate and character of respirations, (e) electrocardiograms, the general clinical condition of the patient, noting especially the degree of cyanosis, dyspnea, orthopnea, amount and extent of edema, pulmonary congestion, enlargement of the liver and chief objective symptoms. Then from .2 to .3 gms. of camphor in oil was injected q 2 h. for 4 or 5 doses. Observations were repeated before and at frequent intervals after each injection. Result: "In none of our patients or normal persons did camphor exert any demonstrable influence on the circulation. There was no change whatever in 10 of the patients, the remaining 4 were definitely more uncomfortable after camphor than before. Twelve of the patients received digitalis subsequently. Of these, ten showed definite and prompt improvement. Gottlieb and Meyer believe that when stimulus production in the heart threatens to fail, camphor is to be considered as a heart stimulant. However, most experimental work is in accord with the conclusion of Sollman that such effects if they occur are inconstant and unreliable. Even the value of water soluble and quickly absorbable camphor-like drugs such as cardiozole is in question.

Almost unanimous approval of their value has resulted from experiments with the digitalis group, adrenalin and caffeine. Digitalis has a field of usefulness in cardiac diseases shared by no other drug and yet when given indiscriminately it is capable of mischief. Some extremely interesting observations were made on a group of twelve children, (4 to 13 years of age), with chronic rheumatic heart disease and signs of heart failure by Schwartz and Schwedel, 3 c.c. of tincture of digitalis being used daily until nausea and vomiting occurred. These observers found that sino-auricular block and other irregularities may be abolished temporarily by atropine sulphate, (Gr. 1/50 subcutaneously), although the maximum effect of the drug was not apparent for 45 minutes and disappeared within 2 hours. Because they were abolished by atropine, it may be assumed that such irregularities were due to stimulation of the cardio-inhibitory mechanism by digitalis. It rarely caused a sinus tachycardia. In acute carditis with fever the heart rate increased by 50 beats per minute and digitalis therapy was futile. There is no fixed relationship between slowing of the sinus rate and production of emesis. Sinus bradycardia, (vagal inhibition), is an early digitalis manifestation occurring in all children during rest. It was transitory. Sino-auricular block, dropped beats and ventricular escape appears long before nausea and vomiting. The latter, therefore, cannot be used as the criterion of the therapeutic dose of the drug in children with heart disease. The clinical condition of these children such as dyspnea, edema and enlargement of the liver was not materially changed during the presence of sinus slowing as a result of digitalis administration. Digitalis was unable to check the rapid beating

of the heart produced by active fever, even in maximum doses. As far as diuresis is concerned, an increase in weight, (probably due to water retention), was registered in several of the children. Sinus bradycardia, the only type of slowing of the heart rate which could be considered of therapeutic value, was transitory in all children. Nathanson has demonstrated that digitalis may be dangerous in cardiac standstill induced by pressure on the carotid sinus. Edmunds and Cooper found that in circulatory failure due to diphtheria, digitalis proved to be quite toxic and this has been the experience of numerous investigators. Bastedo says that digitalis therapy is employed for three pharmacological purposes: to slow the heart as a whole, to slow the ventricle alone by reducing the impulse it receives from the auricle, to improve tone and contractile power of the ventricular muscle and to relieve auricular flutter.

It has no constant effect on blood pressure. The good effects are seen in one or several of the following ways: increased urination, lessened accumulation of fluid in the chest cavities, disappearance of edema, cyanosis and dyspnea, reduction in the size of the liver and of the heart and improvement in the general condition of the patient. In myocarditis it should be used cautiously and in bradycardia and diphtheria—not at all. In addition to nausea, overdosing makes itself known, (subjectively), by anorrexia, diarrhea, oppression about the heart, palpitation, headache, disturbed vision and dizziness. Paul D. White opines that there are but three indications for the use of digitalis, viz., as a therapeutic test, evident congestive failure and permanent auricular fibrillation of flutter where the ventricular rate is high. Evident congestive failure is present when dyspnea, edema or cyanosis are obviously the result of myocardial weakness. Even with heart block the presence of congestive failure demands digitalis if rest fails to relieve the condition. The spectacular effect of digitalis in auricular fibrillation is not obtained in conditions with normal rhythm. In the presence of fever, this drug is rarely of benefit. This author sums up the indications and contraindications as follows: Digitalis is contraindicated in high grade heart block with Stokes-Adams syndrome and effort syndrome. No infectious disease of any kind including pneumonia, typhoid fever and endocarditis, should be treated with this drug. Except in congestive failure, the same holds true in the treatment of shock following surgical operations, accidents or hemorrhage. In vasomotor collapse it is of no value. The value of digitalis in the treatment of pneumonia is a highly controversial subject but its routine use has probably lost in popularity. Cecil treated a large number of cases with and the same number without the drug and concluded that the latter had a lower mortality. On the other hand, Bastedo and Harlow Brooks contend that it is of great value, therefore in attempting to decide this question one is constrained to ask as did Pilate, "What is truth?"

Another commonly used stimulant which has won the approval of laboratory worker as well as clinician is caffeine. Jackson lauds its use in chronic myocarditis, stating that the tonic effect is rapid in onset

(though evanescent), and does not give way to toxic action as in the case of large doses of digitalis. Hyman and Fenichel would restrict its use to the unconscious patient to avoid cerebral stimulation and anxiety which may otherwise occur. Duke cites several instances of spectacular improvement in comatose patients after the intravenous injection of 2 grs. of caffeine sodio benzoate. White claims that this drug is a circulatory stimulant but probably acts more through its vasomotor effect than directly on the heart. He finds it useful in shock, of little value in cardiac failure and particularly helpful as a respiratory stimulant in such conditions as Cheyne-Stokes respiration, if given in large doses (5-20 grs.), subcutaneously or intravenously. Morse also considers it helpful as a respiratory stimulant in pneumonia. Of peculiar interest to the pediatrist is the treatment of asphyxia of the newborn. Broadly speaking, this results from intracranial injury causing pressure on the respiratory center or to the toxic effects on this center of such drugs as morphine and scopalamine given the mother. In cases of severe intracranial injury efforts at resuscitation are usually futile and this is fortunate. In the less severe cases, *failure to give prompt treatment or not failing to give improper treatment,* such as the Schultz and similar barbaric methods of artificial respiration, unquestionably lessens the chances of survival. If a baby should survive such treatment it would be a striking illustration of the survival of the fittest. Before attempting stimulation, there are two things of paramount importance, one, the removal of mucus and other fluids from the airway and the other, keeping the baby warm. The temperature of the delivery room is not less than thirty degrees below the desired body temperature of the baby. As soon as the cord is cut (or before), the baby should be placed in a warm blanket and surrounded with hot water bottles or placed in a heated basket. Even when normal respirations have occurred for some time, the ritual of the bath can well be dispensed with for a few days. Better a live baby covered with vernix caseosa and meconium than a clean cadaver. Mouth to mouth breathing is of proved value but carries with it the risk of infection and (if the physician happens to be a blow hard), the possibility of dilating the air radicals and forcing fluid into them since it is possible to thus develop a positive pressure of 50 to 75 mm. of mercury. What are the best stimulants to use? Without question, oxygen with carbon dioxide (5-20%), is the best respiratory stimulant and adrenalin, the best cardiac stimulant. Although such refinements are beyond must of us, the apparatus, (consisting of gas tanks, suction outfit with intratracheal tube and a small laryngoscope of pocket flashlight type), devised and successfully used by Flagg would seem ideal. The opinion has been expressed that CO_2 should not be used in asphyxia because the patient, (stillborn), shows all the characteristic blood changes common to acidosis. One of the highest authorities, Yandell Henderson, refutes this. He holds that it is the lack of oxygen which induces the deficiency of carbon dioxide or acarbia and that the administration of carbon dioxide diluted in oxygen is a close imitation of nature's own

method, the oxygen keeping the respiratory center alive and the carbon dioxide stimulating it to activity. It is the increase or the decrease of the sensitivity of the respiratory center which really causes the change in the pH of the blood. The supply of oxygen is the main factor controlling the sensitivity of the center but neither oxygen nor oxygen deficiency ever acts as a stimulus to the center, the latter being afforded by the CO_2. Adrenalin is the only physiological cardiac stimulant and when given in cardiac arrest the effect may be almost miraculous. It should be given into the myocardium because the difference between success and failure may be merely a matter of seconds. Among the authorities reporting the successful use of adrenalin in the apparently moribund are Abbott, Crile, Bodon, Nathanson and White. Abbott collected from the literature 101 cases with 31 recoveries, including 7 cases of asphyxia of the newborn with 3 recoveries and Hyman collected 250 cases with a successful outcome in 25%. The average dose in the newborn was 3-4 minims of a 1-1000 solution. The injection should be made into the wall of the left ventricle with a fine needle about two inches in lenth. If injected into the pericardium or the heart cavities it is no more effective than a hypodermic injection. Intravenous administration is uncertain. Cushney warns that large doses may cause excessive heart acceleration, with consequent fall of pressure. Given intravenously, it has little vasoconstrictor effect but does cause relaxation of the bronchial muscles and overdosage may produce actual pulmonary edema. To summarize: the intramyocardial injection of adrenalin in asphyxia (not relieved by the usual methods) is practical and the risk involved is fully warranted by the otherwise hopeless outcome. "Diseases desperate grown, by desperate appliances must be relieved—or not at all."

Alpha-lobelin, the alkaloid of lobelia inflata, was isolated by Wieland in 1921 and it was supposed to be without the toxic effects of the older preparations of lobelia and to have a marked stimulating effect on the respiratory center without untoward effects even in large doses. While Wilson obtained remarkable results in the treatment of thirty cases of asphyxia of the newborn by the injection of alpha-lobelin into the umbilical vein, it has been condemned by many. Norris and Weiss found the action of the drug inconstant and at times actually dangerous, producing depression of the respiratory center and fall in blood pressure. Marshall used the drug experimentally on 25 adults and concludes that it is a definite stimulant to the respiratory center, that it affects to a similar degree the vomiting center and probably also the vagus centers and that the toxicity of the drug is so great that its extensive clinical use is inadvisable if not actually dangerous.

DISCUSSION

Dr. Lewis W. Elias (Asheville): Dr. Ward is mistaken about the discussion going to be an improvement on the paper. I was interested in the paper for several reasons. One was that it was very well written and

extremely well read, a virtue that not all papers have. Also it opened up a vast field for discussion. It seems to me that this might be turned into a symposium on our experience with stimulants, because our experience is the final test for each of us, after all. I think most of us go ahead and use things that we were taught to use in college, or that drug agents, or some of our readings have led us to change to later on. And we may continue, possibly as Dr. Jacoby said of some men who go on making the same mistake for twenty years, and call that experience. But we have really got to know the point where out of our experience, in spite of failures or ignorance, we have achieved some success in treatment, whatever the medicine we happen to be using. And with that medicine we continue.

All medicines seem to be open to some objections. Dr. Ward, in quoting men who advocated these stimulants, also quoted a number who decried them, and some who pointed out the horrible results that would accompany the use of them.

I was interested at the first of this session in three things. One was remembering the section under stimulants in Holt's latest book. He gave caffeine and epinephrin with the dosage and then he made this brief but comprehensive statement, "Other stimulants have not proved of value." His list was so small that I coupled it with the statement that I made in the paper this morning about this child that had taken no drug whatever in its first five years, and with Dr. Allen advocating suggestive treatment and hope for the best. I was beginning to wonder if we had reached the viewpoint of Oliver. So I was glad to hear Dr. Craven come to the rescue and suggest something that gave real therapeutic results. But Dr. Ward also offers some hope in his paper. I think we all have our little pet stimulants which are more or less in accord with somebody who is supposed to be a successful therapeutist. You can search the literature and get backing for anything you want to use, or condemnation for it.

As I say, it seemed to me that a symposium here this afternoon on the experiences of the men, if for nothing else than to find out what we actually use, and, if we are honest enough, why we use them, and what results we get from the use of them, would be helpful. It would help us to check up somewhat on ourselves, and this would be very useful. For instance, I started early using strophanthus instead of digitalis because Kurley said it caused less disturbance of the stomach, and followed his rule of giving this to a child when its pulse was 150 or over when sleeping. I felt that I got results from it. I used it in all classes of disease where the child seemed to need a lowering of the pulse rate, and I still use strophanthus, though I am growing skeptical of it, but I still get results or I think I do. (Applause)

Dr. Kutscher (Asheville): There is only one member of the Asheville pediatricians who is not here, and he is taking care of the voluminous practice we have left him. I want to say a word, not a controversial word, but add another point in regard to the resuscitation of the newborn, in

which I am particularly interested. Dr. Yandell Henderson is considered an authority, but a great many prominent men feel that he has not said the last word. I am not one to make a decision, but shortly after Dr. Henderson's report regarding the need of CO_2 in these newborn babies, a man from England—I don't remember his name—writing in the Lancet, said it was not the CO_2 they needed for stimulation, it was merely the oxygen they needed; that the newly born is born with an increased CO_2 content, a ratio something like 3 to 2, 3 of CO_2 to 2 of oxygen in comparison with the CO_2 oxygen ratio of the mother; in other words, the infant has more CO_2 in its own blood than the mother has, and thus the added CO_2 for means of resuscitation is not essential.

I do wish that more of the men would take part in this discussion on the subject of therapy. I feel that we all are anxious to know the other man's opinion.

As far as stimulants are concerned, I agree with those who have spoken that caffeine for respiratory conditions and adrenalin for cardiac or circulatory conditions are all I know anything about as stimulants.

There is one point I would like to add about the alpha-lobelin. It was my good fortune some four or five years ago to use a good deal of it, and I discontinued the use of it after six or seven months' time in the newly born service because I didn't feel that it helped at all. Some cases I think—yes it might have, but on the whole I didn't feel it was much of an addition to our therapeutic practices.

Dr. C. R. Bugg (Raleigh): I think we are always interested in things that Dr. Ward presents. We may not always agree with him, and we may have our ideas which may differ slightly, but he has so much good stuff in his paper, and what he says always adds to our knowledge, that we like to hear from him.

My experience has worked down to two stimulants, caffeine and adrenalin, and I very rarely use any other. I would like to ask concerning coriamyrtin. My experience is very small and not worth drawing any conclusion from.

One little thing suggested by his paper, and I am through: I have recently in the past two years seen two cases of conditions which I think must occur more frequently if looked for: lobar pneumonia with a certain amount of cyanosis or dusky appearance, where the cyanosis is very markedly increased. I saw them in consultation, and the question was what had happened. Both cases were instances of what I assumed was a toxic depression of the respiratory center, where the children had very marked rates of respiration, and the rate of respiration and the depth of respiration had changed very strikingly, become much slower and much shallower, so that we were dealing with an anoxemia due I think to a toxic condition. I found in both that caffeine was specific if enough were given, but both of these children had been given large doses of digitalis without any effect, which I think is usually the case in pneumonia. They decided to increase the digitalis and add to it two or two and one-half grains of

caffeine, and repeated it in an hour and a half. I think the caffeine is the drug that is really valuable in those cases, the digitalis being a pure waste of material.

Dr. Keith: I believe the trouble is that most of us are using entirely too small a dose with children. I think you get your maximum effect if the doses are given larger. The doses that are put down in the pharmacopeia should be increased in order that you may get your desired results. On the other hand, following up what Dr. Bugg has said, I think most of these cases of respiratory failure with difficult or embarrassed breathing are associated with some cerebral edema. In addition to the drug used I think lumbar punctures, repeated, are quite helpful in producing regularity in their breathing. (Applause)

Dr. Richard W. Spicer (Winston-Salem): Speaking about resuscitation of the newborn, I have a good many chances to see these cases early, and where the need of an occasional stimulation is apparent in these babies, say, after they are born, and they are not breathing immediately, and there is difficulty. The heart gets very slow, and there is not very much to take up the stimulant in a slow way if you give it, so you probably would want it much more rapidly. The thing that I have found the best of all is the tracheal catheter. I have come to the point of using not much stimulant at all. Just as Dr. Kutscher said, it needs only oxygen instead of carbon dioxide. It is a simple measure just to put the catheter in the trachea with a little rubber bulb attached, not using too much pressure. I remember at the University of Pennsylvania I saw an interne that was over-zealous to get his patient resuscitated, and it is so easy to put so much air in these tubes. If you can be careful enough in these cases, and not be too anxious, put a small amount of air in, you get immediate results. In other words, you can watch the umbilicus pulsate, and you can tell what you are doing. The oxygen immediately causes this stimulation, and you can get the heart to beat up to 140 or the normal amount.

What Dr. Ward said about camphor reminded me that in the physiological laboratory we were taught at that time that camphor was no good, and in doing work on dogs when the dog went bad it was the practice to give him a shot of camphor. This always seemed to me rather inconsistent.

I believe the doctor said something about cardiozole. I believe that is a good drug. It is quick to stimulate circulatory symptoms and probably respiratory as well.

Chairman Saunders: Is there any further discussion of this paper? If not, we will have Dr. Ward close the discussion, please.

Dr. John L. Ward: To reply to Dr. Bugg, I had never seen coriamyrtin used but in one case, and that was not really a fair test for it was used on a child with congenital heart disease that would have died in spite of anything that could have been done. I have seen digitalis used in quite

a few cases of congenital heart, but do not believe that it is efficacious, caffeine being the most desirable respiratory stimulant.

However, as one of the doctors said, we have to use drugs in larger doses than most of us have been using them. If we follow the dosage tables used in most books, we are not going to get results. I believe we are getting to the point where we use very few drugs, but use them in larger doses, at least in children, and if they are watched carefully there is no danger in them.

As to Dr. Kutscher's remarks, the majority of the workers at least dealing with the resuscitation of the newborn, particularly Flagg of New York, claim that carbon dioxide and oxygen mixture is the ideal procedure. Whatever is going to be used, however, I think, as I stated in my paper, the important thing first of all is to be sure that you get the mucous out of the mouth and the fluid out of the trachea and the lungs if possible by suction or other method, and to keep the infant warm. The temperature of the delivery room is not less than thirty degrees below the desired body temperature of the baby. As soon as the cord is cut (or before), the baby should be placed in a warm blanket and surrounded with hot water bottles, or placed in a heated basket. If this is done while we are attempting to use artificial means of stimulation, either of the heart or respiration, (the heart usually beats some time after the respiration has ceased), and if you can get the respiration going usually the heart improves immediately. However, you sometimes get cases of heart standstill not only in the newborn but coming on in an emergency in other cases. Recently we saw a young baby seventeen days old with a penumonia that had a cardiac standstill that was relieved immediately by an intracardiac injection of adrenalin.

Henderson holds that the oxygen has no effect whatever on the respiration, on stimulating the respiration, that it simply keeps the vital centers alive until you can get the stimulation through your carbon dioxide mixed with oxygen or otherwise.

As to Dr. Spicer's remarks, of course the tracheal catheter is very useful. It has been used a long time, and I think that an attempt should be made first, of course, to always get the fluid out and then go ahead. There is always danger in this mouth-to-mouth breathing, if you are going to use that, of introducing infection into the lung, and the further danger of causing severe dilatation of the radicles by too great pressure. It has been shown that the pressure can be raised 50 to 70 millimeters of mercury. (Applause)

Chairman Saunders: The next paper will be the report of a case of "Basophilic Pituitary Adenoma," by Dr. John R. Ashe, of Charlotte.

ADENOMA OF SUPARENAL CORTEX—A CASE REPORT

By Dr. John R. Ashe, Charlotte

The title of this paper or case report, as it appears on the program, "Basophilic Adenoma of the Pituitary Gland," is a misnomer. Unfortunate for the correctness of my original, extremely optimistic diagnosis of basophilism in this child, final autopsy, received too late to change the title as it appears on the program, did not corroborate this diagnosis. Prior to receiving this report, a feeling of uncertainty in actually having a patient with such a rare condition, especially since no occurrence of this syndrome had been reported in a child, and a personal feeling that I knew very little about disorders of the pituitary and other glands of internal secretion, caused me to hesitate considerably in reporting this case to you. However, this child was of such intense interest to me and was so thoroughly studied by the consultants in Boston that I am sure it is sufficiently interesting to justify presenting to you. I regret, however, that autopsy findings force me to present this as an adenoma of the adrenal cortex rather than under the more intensely interesting title of basophilic adenoma of the pituitary. Just before this child first came under my observation, I had become quite interested in the subject of basophilic adenoma, and the striking syndrome attributed to them through reading a most interesting article by Dr. Cushing, published in the Bulletin of Johns Hopkins in 1932. This child presented a clinical picture so suggestive of an early example of this syndrome that I probably too readily made this my diagnosis. I realized that most of her symptoms and signs were produced by overactivity of the adrenal cortex, but thought that this increased adrenal secretion was surely secondary to overactivity of the basophilic cells of the anterior pituitary lobe due to the probable presence of an adenoma composed of these cells.

Since basophilism was my original diagnosis and also because it was considered as one of the possible explanations for the extreme glandular disturbance in this child by Dr. Cushing, the following is a brief description of this condition.

Until very recently it was not thought that basophilic adenomata of the pituitary, which are very rare, were associated with any definite clinical syndrome. Dr. Cushing, however, in the article referred to above, reported 14 cases with very similar clinical pictures, in most of whom autopsy examinations revealed the presence of these very small basophilic adenomata and he very strongly suggested that this most unusual syndrome was caused by these tumors. This syndrome consists of changes produced not only by an overactivity of these basophilic cells, but by alterations in the secretory functions of all of the other endocrines—thyroids, parathyroids, suprarenals, pancreas, and gonads. Dr. Cushing thought that the pituitary was probably the master gland of the series, and that the dysfunction of the other glands were secondary to the disturbance in the pituitary.

The following features were characteristic in all of these cases:

1. A rapidly acquired adiposity confined to the face, neck, trunk, particularly the abdomen; the extremities remaining relatively normal.

2. A strong tendency to become round shouldered with the development of kyphosis, even to the point of an actual decrease in statue.

3. A sexual dystrophy shown by early amenorrhoea in women and ultimate functionl impotence in men.

4. A marked increase of hair of face and trunk in all women and adolescent males and just the reverse in male adults.

5. A dusky, plethoric erythematous appearance of the skin of the face and body with purplish linea striae on abdomen, chest and thighs.

6. Vascular hypertension with cardia hypertrophy.

7. Polycythemia.

8. Variable backaches, abdominal pains, fatigueability and ultimately extreme weakness.

Other features less regularly present were: acrocyanosis; purpura; extreme dryness of skin with pigmentation; eye ache; transient diplopias; papilloedema; subretinal exudate; retinal hemorrhage; polyphagia; polydipsia; polyuria; hyperglycemia and glycosuria; leucocytosis; usually an increased metabolic rate; osteoporosis; convulsions.

The disease usually affects young women between the ages of 17 and 25, and runs its course in 3 to 7 years. It more rarely affects men.

Cortical suprarenal adenomas are somewhat less rare than the basophilic adenomas and are of great interest because of the marked changes that they produce in metabolism, hair distribution, hypertension and the secondary sex characteristics. Almost identical changes are attributed to the basophilic pituitary adenomatas.

Two main syndromes are produced by these tumors: 1st, the obese type, occurring in female children and adults. Unless the tumors are very malignant, causing early death, the following changes take place: an increase of fat, the distribution being on face, chest, and abdomen, buttocks and hips, the extremities remaining normal; hypertension with cardiac hypertrophy. This hypertension is more or less constant, thus differing from the paroxysmal type of hypertension that is associated with tumors of the medullary portion of the gland; hirsutism which conforms to that of the male only in much more exaggerated form; the skin becomes red and dry with pigmentation and acne and striae atrophica appear on abdomen, hips and thighs; the voice becomes masculine because of enlargement and elongation of the vocal cords; changes in external genitalia become marked; the clitoris and the labia majora become very much enlarged, and the labia are covered with hair; the internal sex organs decreasing in size. When this adenoma occurs in the fetus it causes pseudo-hermaphroditism.

The second type is the Herculean type occurring in male children and adults, consists of striking growth of body with great muscular development, early ossification and dentition, hypertrichosis, rough skin with acne, and maturity of the external genitals.

AMANUENSIS

This three-year-old child was brought to me because of three very alarming attacks that she had had during the past two months.

P. H. She was born in Gastonia—one month premature—without any immediate evidence of birth injury. She was nursed for nine months and then weaned. Her development was normal—walked at a year, talked at two years, and teeth erupted normally. She was thought to be a perfectly normal child up to the time of her first attack seven weeks ago.

F. H. Father, 30 years of age—in good health, and without visible evidence of endocrine dysfunctions. Mother, 30 years of age, in good health and without visible evidence of endocrine dysfunction. Brothers, aged 2 and 5—both well and apparently normal. One paternal uncle had convulsions during childhood (early).

P. I. While visiting in New Bedford, Mass., the first attack occurred. On January 30th awakened as usual, and seemed to be all right, except that she was unusually drowsy. Shortly afterward she began having mild convulsions, alternating with profound stupor. The convulsions increased in severity, and later in the morning she was sent to the hospital, where a complete physical examination revealed nothing to account for the convulsions and stupor. (In view of her present condition, it is interesting to note that her abdomen was soft and rounded, that her heart was normal in size, that her skin was normal, that her pupils reacted normally, that her lips were very red, and that her vascular tension was low, that her knee jerks were not obtained.) A spinal puncture gave negative fluid. Blood NPN and blood sugar were both within normal limts. Urine showed a slight trace of albumin, and W. B. C. was 17,000. Otherwise all laboratory findings were normal. After admission to hospital convulsions continued severely for one hour and the child became extremely cyanotic and vomited large quantities of yellow fluid. Convulsions then stopped and she remained in a stupor for several hours. Temperature reached 101, pulse 140, and respirations 32. The following day she became much better and much brighter, and a day later she had apparently perfectly recovered and was discharged with a diagnosis of symptomatic epilepsy.

The second attack came 2 days later and consisted of moderate stupor and a right sided frontal headache. These symptoms lasted several hours and physical findings were again negative.

The third attack came eleven days later and consisted of severe right sided headache and stupor with some trembling of right hand. Eight hours later she began having localized convulsions involving left arm and left leg and left side of back. These lasted for one hour and ceased on admin-

istering ether. During the night on two occasions there was slight twitching of the left side.

During the last two attacks she was afebrile.

One week after the last attack fundus examination revealed no edema of the discs.

This history was obtained largely from the notes of Dr. M. McDonald of New Bedford, who attended her during these attacks.

The parents have made the following observations during this time: they noticed that at about the time of the first attack her face was becoming puffy and that her abdomen was becoming enlarged, and that since the last attack there has been marked mottling of her arms and legs, and that her gait has been apparently a little stiff and uncertain, and that she does not want to walk. There has been no change in her mental ability, but she has become quite irritable. Her appetite has increased a great deal—as soon as she finished one meal she begins talking about the next one. There has apparently been no thirst, but on some days she urinates more frequently. Stools are not unusually large but are consistently pale. Increase in weight in the past two months has been only about ¾ of a pound in spite of the marked increase in face, chest and abdomen.

EXAMINATION

The most striking things noticed are the puffiness of her face, apparent increase in subcutaneous fat of her chest, and large distended and protruding abdomen without any apparent increase in the size of her arms and legs. Not less striking is the peculiar dusky erythematous color of the skin of her face and the profuse mottling of the skin of her arms and legs.

Her pupils were dilated and reacted very slightly to light and accommodation. Due to puffiness of face there was some narrowing of her palpebral fissures. Chest was negative except for increase in size of cardiac dullness and marked increase of subcutaneous tissues. Arms and legs were apparently normal. Fingers broad proximally, narrowing considerably distally. Skin is smooth and moist and apparently normal except for the peculiar complexion and basomotic capillary mottling over extremities. Abdomen felt like that of an obese woman with apparent great thickening of the subcutaneous fat. It is much enlarged and protrudes without sagging. No enlarged organs or masses. Genitalia appear to be normal. Hair of head is soft and abundant and there is some growth of excess hair over back of chest. There is no evidence of enlarged glands. Spine is straight; there is no evidence of rachitic changes or other bony changes. Her gait is rather difficult to describe—it is a little stiff-legged and uncertain, and does not suggest cerebellar disease or any form of paralysis. Her weight is 32½ pounds. Blood pressure 190/160; red blood count, 5,800,000; hemoglobin, 95%; white blood count 17,600; N. 68; L. 29; M. 2, E. 1. Urine is negative.

Examination of eyes by Dr. Neblett: pupils considerably dilated, regular, round and equal in size with very faint response to light. Intrinsic muscles: there is definite lagging of the right globe up with a sharp upshoot of the left. Moderate bletherospasm. No nystagmus. Fundi-pallor both discs, irregular margins, slightly more in right, scattered choroidal exudate in left periphery—none in right.

X-ray examination by Dr. Fetner: Right stereoscopic and A. P. films of the skull show a smooth thin cranial vault with no definite signs of increased intracranial pressure, separation of the sutures or unusual calcification or decalcification. The sella appears normal in size, shape and position, and the mastoids are clear.

Following my examination and because I thought she was surely a case of basophilism, and also because the parents were from New Bedford, which is near Boston, this child was sent to Dr. Cushing and was studied very carefully in Peter Brent Brigham Hospital and in the Children's Hospital by Drs. Cushing, Ingraham, Blackfan, and others. The following is the laboratory data obtained there: urine negative; hemoglobin 90 to 100 T; red blood cells 4,940,000 to 5,910,000; white blood count, 9,000; spinal fluid normal; tuberculin to 500 negative; basal metabolic rate —37; blood sugar fasting 71 mg. % ½ hour after 25 grams glucose p.c. 119, 1 hour 116, 1½ hours 125, 2 hours 116, and 3 hours 108 mg. %; blood calcium 9.8 mg. %; blood phosphorus 3.8 mg. %; serum globulin .6 gms. %; serum albumin 6.9 gms. %; non protein nitrogen 33 mg. %; ventricular fluid—total protein 42 mg. %, sugar 65 mg. %, chlorides 125 c.c. N/10 per liter. X-ray films of the extremities, abdomen, lungs, and skull negative. Seven foot heart plate showed moderate cardiac enlargement, total 10.4 cm. Internal diameter of chest 17.2 cm. Kidney shadows do not seem to be enlarged and barium enema showed nothing unusual. Ventriculo-encephalogram lumbar showed markedly enlarged lateral ventricles, the right being somewhat larger than the left. There is also a moderate excess of air over the periphery evidently on both sides. Impression with diffuse cerebral deficiency more on the right side. Ventriculograms direct tap showed the same condition with the exception that they could not be absolutely sure of any air in the third ventricle. Electrocardiogram was normal.

After these studies they thought that the diagnosis lay between a third ventrical tumor, causing glandular dysfunction, a basophilic adenoma or an adrenal cortex adenoma. They also felt that because of the evidence of cerebral damage already present that further operative procedures were not justified. Dr. Cushing in a personal letter stated that he hesitated to make a diagnosis of basophilism because of the age of the child.

She was discharged from the hospital and was taken back to New Bedford where she was again under the care of Dr. McDonald until her death about one month later. Dr. McDonald stated that she was quite herself for a while, clear mentally and active physically except that on two occasions she had convulsions followed by coma which would clear

in a day or so. At the end of this time she went into a deep coma which lasted for 48 hours and terminated in death, blood pressure day preceding death was 260/190.

Post mortem was done by Dr. McDonald under some difficulty in a funeral home. There was no brain tumor, but some dilatation of cerebral ventricles and cardia hypertrophy. There was an adenoma of the left adrenal gland. This was thought by him to be the essential lesion and the adiposity, tapering fingers, protuberant abdomen being due to associated glandular endocrine imbalance.

The anterior lobe of the pituitary gland was sectioned and studied in great detail by Dr. Wasson, pathologist in St. Luke's Hospital in New Bedford, and no evidence of adenomatous growth were found. Brain sections showed no necrosis or cellular invasion either in the brain itself or in the meninges.

A summary of the main symptoms, signs and laboratory data presented by my patient were: obesity with enlargement of abdomen; polyphagia; weakness; convulsions—general and localized; attacks of coma; irritability; right sided headaches; dusky erythematous complexion; capillary mottling of extremities; tapering fingers, suggesting pituitary disturbance; pupillary changes and choroidal exudate; marked hypertension with cardiac hypertrophy (reaching 260/190); polycythemia with leucocytosis; lowered metabolic rate; evidence of asymetrical moderate dilatation of lateral ventricles.

1. This type of obesity can apparently be caused by disturbance of pituitary, suprarenal glands and disorders of the vegetative cells of the floor of the third ventricle in the region of the tumor cenerium.

2. The dilated ventricles offer considerable difficulty in explaining. It is possible that changes in the hormones could interfere with either secretion or absorption of cerebrospinal fluid, but this would not explain their asymetry. It is also possible that this child might have had a congenital hydrocephalus which did not cause symptoms until about the time that the glandular dysfunction became apparent.

3. The convulsions, attacks of coma, and right sided headaches must have been due to disturbances in the brain due to distortion of the lateral ventricles although section from the brain showed no evidence of pathology there.

4. The pupillary changes and the choroidal exudate must have been due to this same dilation of the ventricles.

5. The polycythemia can be explained by either concentration of the blood, which seems to be a function of the adrenal cortex, although in experimental animals polycythemia is produced by removal of the adrenal cortex and relieved in the same animals by administering cortin to them, just opposite to the polycythemia in this case, which was definitely associated with adrenal cortical tumor. Another explanation for polycythemia is that it is produced by the effect of stimulation of the haema

topoietic center, which is probably situated in the infundibulum and this in this case could have been a part of the lateral ventricle changes rather than to the effect of the overactive adrenal gland.

6. The hypertension with hypertrophy of heart, the plethoric complexion, the vasomotor mottling of the extremities, the weakness and the polyphagia seem to be definitely due to overactivity of the suprarenal cortex.

7. The lowered basal metabolic rate is extremely difficult to explain. The suspected relationship between suprarenal and thyroid would lead us to expect an increased thyroid activity rather than a hypothyroidism. There is certainly nothing about the child's appearance before the onset of this illness to suggest that there had been a preceding hypothyroidism present.

This child showed no changes in her external genitalia, likely because of the rapid progression and rather short duration of her illness.

DISCUSSION

Dr. Sylvia Allen (Charlotte): Dr. John Ashe presented this case to us in the Mecklenburg County Medical Society last fall, and we have all been following it with a great deal of interest over the winter, and all of us have backed him in his diagnosis of basophilic pituitary adenoma. It was a great surprise to us to find it is not, and yet the syndromes are so very close that perhaps the mottling of the skin is the only thing that might have led us to differ in our diagnosis.

I don't know enough about adrenal cortex tumors to discuss them at great length, except that I have been watching the literature with a great deal of interest to see if anyone would find any use for cortin and eschatin in the treatment of narcolepsy and pyknolepsy.

It might be of interest for us to remember Cushing's tumors of the pituitary gland occurring in the pars anterior, two types of cells being present: the chromophobe and the chromophil. The tumors of the chromophobe may become very large before any physiological effect is seen, and often first show themselves by pressure symptoms on the surrounding tissues. The chromophil cells are apt to give physiological symptoms before pressure symptoms show themselves, hence we are more apt to find optic atrophy rather than papilledema in the early stages of these tumors.

Perhaps, the only thing that might have led us to recognize an adrenal tumor as against the pituitary basophilia as diagnosed was the intense coloring of the skin.

We must remember that pressure symptoms from pituitary tumors can often be detected because of the important areas surrounding the pituitary gland. Two cranial nerves are present on each side, the third and sixth, as well as the internal carotid artery, the thalamus and hyper-thalamus above, with a hypothalamus below, the latter through its uncinate lobe giving an aura of taste and smell preceding convulsions, a good localizing sign. (Applause)

Dr. Royal M. Calder (Durham): I wish to apologize for speaking before this section because I am not a pediatrician, but I am impelled to because of my great interest in Dr. Ashe's case and because of the fact that we have had a similar case within the past two years at Duke Hospital.

Shortly after the appearance of Dr. Cushing's article a patient came to the out-patient clinic presenting in every particular the features of the syndrome described by Cushing. The first man who saw her thought that her condition was due to an adrenal cortex tumor. However, he had not heard of Cushing's syndrome. It was only a couple of months after the appearance of the article, and the rest of us who had read the article were struck with the marked similarity between this patient and Cushing's description. As a result of that we rather scoffed at the diagnosis of adrenal cortex tumor. She was studied extensively for several months in the hospital. It was found that she did not fail to present a single one of the features of Cushing's syndrome. Particularly striking was the osteoporosis which she displayed. There was a marked decalcification of all the bones of the body, which accounted perhaps for the X-ray appearance of the sella turcica, and which we interpreted at the time as being due to the pressure of a pituitary tumor. There was marked decalcification of all the bones, including several of the vertebrae. She was in the hospital for several months, subjected to all sorts of examinations, and every form of treatment which we thought might conceivably help her was undertaken, with no result whatsoever. Finally, she became discouraged and went home, and six or eight months later died at Gastonia. The pathologist from Duke was sent down there. He made a very careful pathological study of the case, and the autopsy revealed a huge suprarenal tumor. Careful serial sections of the pituitary were made and these sections were sent to Dr. Cushing, who concurred in our opinion that there was no evidence of basophilic pituitary adenoma.

In retrospect we have been trying to find signs to form the basis for a differential diagnosis between these two conditions. In view of Dr. Ashe's findings this afternoon, so far as I can see I don't know of a single differential feature that can be relied on. In correspondence with Dr. Cushing he finally narrows the differentiation down to the condition of the external genitalia. He said that in basophilic pituitary adenoma there is no hypertrophy of these structures, whereas in adrenal tumors these organs are invariably enlarged. In view of Dr. Ashe's report that his patient also showed no hypertrophy of the external genitalia, we can't say that hypertrophy of the genitalia is necessarily an accompaniment of adrenal cortex tumors. As I see the matter there are no reliable differential criteria. I should like for Dr. Ashe to discuss the matter from that point of view.

I mention this case, of course, with considerable chagrin because I think if we had entertained the diagnosis of suprarenal tumor more seriously perhaps our patient could have been operated on and her

symptoms relieved. The lesson which is taught by such an experience is obvious, of course: that in the absence of differential criteria, in justice to our patient we should always submit such a case to exploratory operation so that if a suprarenal tumor is present it can be removed, perhaps with complete relief of symptoms, as has been reported numerous times in the literature. (Applause)

MALNUTRITION

J. S. Hunt, B.S., M.D., Charlotte, N. C.

In the discussion of such a subject as malnutrition, it is obvious that a single paper, to cover the various channels open to consideration would assume considerable proportions. It is therefore the purpose of the writer to narrow the field to the application of specific adjuncts in the management of acute malnutrition, nutritional anemia, and the feeding problem-child.

Acute malnutrition or marasmus again opens many avenues of thought. The causes of this condition are legion and any standard text will classify these causes which for the sake of brevity I do not wish to review. Probably the single factor of greatest importance in the management of marasmus is the readjustment of the body to its normal fluid balance so greatly upset in this the most severe form of malnutrition. I wish to present a method of replacing fluid balance which has been more successful in my hands than other methods, namely, the administration of continuous intravenous therapy.

Children are very responsive to changes in their fluid balance, and this balance is so quickly and certainly upset in cases of vomiting and diarrhea that it is in such conditions where continuous intravenous drip is particularly indicated. Prolonged vomiting with a loss of fluid and food intake, inevitably gives rise to a depletion of chlorides and normal body fluids with a resulting alkalosis. In like manner diarrhea further depletes the interstitial fluids, prevents intestinal absorption, and brings about a diminution of hydroxyl ions, increasing the proportion of carboxyl ions with resulting acidosis, dehydration, and marasmus. It becomes necessary to supply fluids and food by methods other than those usually employed.

It is not possible to meet the nutritional requirements of the body by injection of subcutaneous fluids for the obvious reason of the low caloric value of the body isotonic fluids. It is also impossible for maximum absorption of fluids to take place when the circulation has lost its normal tone and the capillaries no longer take up fluids readily. In like manner intraperitoneal injections are insufficient. There is little absorption from the colon in cases of diarrhea and even in a normal large bowel absorption of food either does not take place or is so slight as to be practically valueless. There remains then only the intravenous route. Fluids have

been introduced into the body for many years, but it was not until 1885 that foods were so administered, when Gaule, a Swiss surgeon, advocated glucose solution intravenously. This method supplies fluids directly to the circulation, supplies the body with available carbohydrate, the utilization of which is necessary in glycogen storage, producing immediately available energy, aiding in the proper metabolism of fats, sparing the proteins, and in promoting diuresis.

In order for foods and fluids to be properly utilized they must be introduced into the circulation in a constant rate and should be sufficient in quantity to supply the needs of the body and yet not be so massive as to over-burden an already impaired circulation and cause a stasis of body fluids with resulting "water logging." It is imperative therefore that a definite calculated amount of foods and fluids should be given in order to be constantly available. It is this fact of availability that makes continuous intravenous therapy signally important.

In my hands the procedure which has given the best results, is first, give a massive infusion of 10% glucose which will dilute an already concentrated blood stream and also promote diuresis. Second, a slow infusion of whole citrated blood; then 10% glucose at a rate of flow of 150 c.c. for each kilogram of body weight in 24 hours. To this Hartmann's buffered salts solution has been added because of its sodium, potassium, and calcium chloride ions so necessary in combatting alkalosis, and its sodium lactate conversion products available in cases of acidosis. It is difficult to estimate the value of this procedure as a life saving measure as statistics are few. To quote Matas who uses continuous intravenous drip in adult surgery: "Suffice it to say that in the extremely grave (and too often hopeless) cases in which I have resorted to the drip in the past the mortality rate has been necessarily high and that the failure of the drip to save life is no criterion of its efficiency or its inefficiency except for the particular purpose for which it is applied."

This apparatus does not differ in principle from the machine devised by Brush and conforms to the criteria he sets for continuous intravenous drips. These are constant access to the vein, continuous flow of fluid, uniform rate of delivery and maintainance of suitable temperature of the fluid to be administered.

I shall illustrate the apparatus by a few typical cases of acute malnutrition: Case No. 1. White male 7 years of age. Hospitalized at St. Peters Hospital and carried under diagnosis of Stills disease, was vomiting practically everything ingested and had a well marked diarrhea. Weight 15 kilograms. Glucose (10%) was begun by continuous intravenous drip at the rate of 15 drops per minute or approximately 2400 c.c. in 24 hours. The drip was continued without interruption or interference for 2½ days at the end of which time vomiting and diarrhea had ceased and the tissues showed much improved turgor. This child is living at the present time.

Case No. 2. White female 18 months of age. Hospitalized at Mercy Hospital. Diagnosis: Marasmus with typical finding for that condition.

Weight 5 kilograms glucose (10%), 120 c.c. intravenously. In about 6 hours transfusion 120 c.c. whole citrated blood followed immediately by continuous intravenous drip of glucose (10%) and Hartmann's solution at the rate of 8 drops per minute or approximately 750 c.c. fluid in 24 hours. This case ended in complete recovery.

Case No. 3. White female age 3 years. Hospitalized at Presbyterian Hospital. History of diarrhea and vomiting of 5 days duration. Typical case of acute malnutrition and upset acid-base equilibrium. Weight 13 kilograms, given 200 c.c. (10%) glucose followed by transfusion 150 c.c. whole citrated blood and continuous intravenous drip glucose (10%) and Hartman's solution at the rate of 1950 c.c. in 24 hours. Despite treatment the child died at the end of 15 hours. The drip in this case had served its purpose of attempting to replace lost fluids and minerals although to no avail.

Case No. 4. White male 4 years of age. Hospitalized at St. Peters Hospital. Diagnosis: Solitary cystic kidney with nephrectomy followed in three weeks by intestinal obstruction from adhesions. The drip was begun following insertion of an enterostomy tube. The child was very greatly malnourished and had typical findings of acute intestinal obstruction. Glucose (10%) was given at rate of 15 drops per minute or approximately 2400 c.c. in 24 hours. The drip was run for 3 days at the end of which time child was taking some food by mouth and the proximal gut had begun draining through the enterostomy tube. Child made a complete and uneventful recovery.

The second stage of malnutrition is now reached in which the child is taking food and may be ambulatory. At this stage the processes of definite pathology may be absent and it may be explained that this absence of definite pathology probably accounts for occasional lethargy in properly handling these cases of secondary or nutritional anemia. This form of malnutrition is the one most frequently met from the premature infant to the pre-school child and, indeed, too often in the child to the age of puberty.

That babies fed on cow's milk are more prone to develop a "milk anemia" than babies fed on breast milk is accepted due to the lower mineral content of cow's milk. The adult obtains his iron largely from the organic supply of vegetables and other diversified foods. The infant, lacking these foods, develops a secondary anemia. Also the breast fed whose mother is improperly nourished may develop the same type of anemia. Corrections have been attempted by all forms of iron: organic, inorganic, reduced, ferrous and ferric iron each being proposed for various virtues. Bunge particularly held that the action of iron, other than organic iron, on increasing hemoglobin was practically negligible. However, Abderhalden in 1900 definitely proved that actual conversion of inorganic iron into hemoglobin does take place.

Investigators working on rats have raised the animals on cow's milk until a definite anemia was produced. When the milk was supplemented

by iron and copper normal hemoglobin levels was the result. This indicates that milk is deficient only in iron and copper insofar as hemoglobin is concerned. The stimulatory effect of the inorganic elements Co., Zn., Cu., Ge., Ni., and others have been definitely shown in animal experimentation. This is probably due to the catalylic action of these elements. Copper is the element of greatest acceleration.

That ferrous iron is more poisonous than ferric iron, when given intravenously, has been proved, indicating increased absorption of bivalent or ferrous iron. It has been shown that ferrous iron has seven times the advantage in increase of erythrocytic stimulation over ferric iron when the number of red blood cells is below four million. Ferric iron is also known to definitely increase hemoglobin content.

Sollmon feels that there is absorption from all forms of iron.

This experimental work has been applied to the child with gratifying results. Rise in hemoglobin is found when given iron alone and is markedly accelerated by the addition of copper. This rise is most evident when the hemoglobin is above 50% for above this point the hemoglobin curves from cases on iron alone tend somewhat to flatten out, whereas those from cases on iron and copper continue to rise steeply up to about 70%.

The following results have been obtained in certain of my private cases. These children were given iron and ammonium citrate (10% Aq. solution) 2 c.c. per kilogram body weight in 24 hours, with copper sulphate (½% Aq. solution) 1 c.c. per kilogram body weight for the same period of time. The medications were given in milk and divided according to the number of daily feedings of milk. When nausea occurred the dosage was diminished.

	Initial Examination			Effect of Fe. and Cu.	
Case number	*Age*	*Weight*	*Hgb. % (Sahli)*	*Hgb.*	*Time*
1.	5 mos.	12-6	60%	80%	8 weeks
2.	4½ yrs.	33-8	75%	90%	4 "
3.	9 yrs.	44-4	65%	78%	4 "
4.	9 mos.	17 lbs.	27%	71%	4 "
5.	9 yrs.	34 lbs.	70%	82%	8 "
6.	5 mos.	11 lbs.	48%	80%	5 "
7.	18 mos.	14-4	60%	85%	2 "
8.	4 yrs.	30 lbs.	64%	78%	6 "

As a further adjunct in the treatment of nutritional anemia with malnutrition, insulin is receiving a rather prominent place in present day therapy. First favorable mention of the beneficient effect of insulin on malnutrition, not connected with diabetics, appears in 1923. The following year insulin was successfully used in the athrepsia of early infancy. Prior to this time such compounds as tincture of gentian, nux vomica, and others were the only appetizers given and almost always without definite results, except an extreme dislike for the doctor and his medicines. Since this beginning many reports have been given to indicate the very definite value of insulin.

The general opinion holds that insulin is of value in malnutrition for the following reasons:

1. Stimulation of glycogenesis and glycogenolysis.

2. Allows for greater utilization of carbohydrate, thereby increasing appetite.

3. Promotes the conversion of carbohydrates through the glycerolls into fats with storage in the tissues as such and permanent increase in weight. Weight is also increased through the storage of water in the tissues with the conversion of carbohydrates to glycogen.

4. Increases gastric peristalsis.

5. There is a general stimulatory effect on the hypophysis, the thyroid, and indeed, on the whole endocrine system.

6. Tends to avoidance of dehydration.

The only recognized dangers are from the possibility of inducing hypoglycemia as individual tolerance is quite variable and too, there is a possibility of accentuating existing allergic conditions or tendencies. In cases of heart diseases with myocardial damage an excess burden may be thrown on the left heart due to insulin increasing blood viscosity and consequently diminishing blood volume.

The dosage is necessarily a variable factor because of the fact of variance in individual tolerance. Certain of the French writers advocate one unit per kilogram body weight given subentaneously once daily. Other recommendations propose a dosage varying from ½ to 2 units in infants up to 15 to 25 units in older children.

I have employed insulin successfully in a small series of cases the results of which are reported:

	Initial Examination		Effect of Insulin		
Case number	*Age*	*Weight*	*Insulin*	*Weight*	*Time*
1.	9 yrs.	34 lbs.	U. 8	52 lbs.	12 weeks
2.	18 mos.	14 "	U. 7	16 "	4 "
3.	9 yrs.	43 "	U. 10	45¼ "	6 "
4.	7 yrs.	48 "	U. 10	49½ "	2 "

Lastly the feeding problem-child presents a picture too often passed over with the admonition to the mother to just "feed the child up," or to lay down hard and fast rules requiring the child to eat whatever its mother dictates, resulting in a perpetual fight between the two and ultimately increasing the malnutrition present. It is quite beyond my scope to enumerate the details of child management, theories of behaviorism, etc., so often laid down by didactic scientists working on hypothetical children. Brennerman has voiced his disapproval of the teaching of unproven psychiatric theories, being delivered to the laity without being subjected to the criticism and control of those with experience in practical pediatrics. Gerstley divides child study into two parts. (a) Teaching the parents the necessity of the child's independence. (b) Teaching the importance of a

calm, peaceful atmosphere in the home. The parent is too often the cause of the stormy sessions at mealtime. Bribes, threats, and punishment have all failed and the mother in exasperation finally seeks pediatric advice. My plan is based in some extent on the policy of letting the child eat whatever he wants as was admirably done by Dr. Clara Davis. The child's schedule should be logically worked out. It is usually convenient to have the meal with the family once the family has been instructed to make no reference to food, as being either good or bad. A diversified diet is placed before the child. He can eat or refuse just as he chooses. If he chooses not to eat he is left to go to the next meal without intermediate feeding and so on until the child teaches himself that in order to appease his hunger he can eat provided he wants to. This is a management that consumes much time and patience on the part of the pediatrician, but is one which will certainly give results. I feel that it is a mistake to state the child must have any specified amount of any food. I give the mother the following dietary schedule which shall be applied to best fit in the routine of the household:

BREAKFAST

1. Stewed fruit: Apples, peaches, apricots, and prunes.
2. Cooked cereal: Pablum, Wheatena, Farina, Rolston's Food, Pettijohns cereal, Cream of Wheat, or Meade's Cereal.
3. Egg: Poached, coddled or soft boiled.
4. Crisp bacon.
5. Cup of milk.
6. Toast, butter.

LUNCH

1. Broth: (Beef or chicken) or vegetable soup.
2. Meat or chicken with other additions according to age.
3. Green vegetables.
4. Starch vegetables.
5. Toast, milk, butter.
6. Dessert: Junket, jello, gelatin or simple custards and ice cream.

Noon nap very essential.

SUPPER

Given early and a very light meal.

1. Cereal.
2. Stewed fruits.
3. Cup of milk, toast, butter.
4. Spread of jelly or preserves.

I do not think it wise to stipulate any one food. It is most unwise to insist for example, on spinach or a quart of milk per day. Let the child do his own selecting from the list given. The mother should be admonished not to let the child eat excessive quantities of any one particular food.

Case report: W. F., a white female 9 years of age. Came to my office July 26, 1933, accompanied by her mother and two sisters. Chief complaint was "nervousness." Family history: Mother 50 years of age. Nervous type and quite ignorant. Is separated from her husband. Father 58 years of age and has rheumatism. There are 10 siblings, ranging from 38 years of age to the patient. All the other children are grown. Past history: Reveals a normal birth. After having been breast fed only a week, baby was placed on condensed milk, and continued to the age of 3 years. Had no cod liver oil or orange juice. The baby sat up at the fourth month, talked at the twelfth month. Dentition occurred at the twelfth month, and walked at the fifteenth month. Habits: Wets bed to present time. Does not play well with other children. Does not like to play with dolls. Education: Has not attended school because she is "Just too mean and uncontrollable." There have been no operations, accidents, or injuries. Present illness is really a continuation of her life history, characterized by very improper feedings and failure to develop physically. The family is exceedingly high strung, has suffered a separation of mother and father. The child's every whim is catered to, she has her way about everything, going into a shrieking rage if she is crossed. She goes to bed about ten or eleven o'clock, or when she chooses. On physical examination weight is 34 lbs. (average 57 lbs.), Temp. 99 F., and height 53 inches (average 48½ inches). Poorly developed, poorly nourished child. Of very sullen mien and non-responsive to questions, although will perform acts willingly and intelligently, as dressing, walking, and sitting. On being questioned alone child seems to gain confidence. Question: "What is the size of your shoe?" Answer: "It's a number 9." A correct answer. Question: "Your socks are on backwards." Answer: "I know it, but I don't care if they are." The other positive findings were sallowness of skin, dental carries, and mild rachetic stigmata. The hair on her head was long and unkempt, hanging below her shoulders.

Diagnosis and treatment: This is evidently a girl of normal birth and normal start in life, but due to extraneous circumstances, plus physical retardation, her personality has been subdued almost to negativity. She is maladjusted to her environment and is a definite child-parent problem. Points in her correction consist in revamping the child's entire life. The first point stressed was her feedings. Schedule was given to include water and orange juice and exercises on arising. Breakfast, lunch, and supper to be had with other members of the household and these members admonished to make no reference to food. If the girl did not eat, at the end of 25 minutes her plate was removed without comment and no further offer of food made until lunch time. Patient eating better at end of three days.

The next problem attacked was that of rest. One and a half hours' rest following the noon-day meal was insisted upon. Child had a temper tantrum the first trial but the parents had been instructed to let her cry it out, which was done. The child is now insistent upon taking her naps.

Next the girl's hair was cut after much pleading with the mother, instruction in A.B.C.'s begun, scoldings and strap beatings discontinued, and the little girl removed from her world of fantasy, power, and dominance, to the world of reality, in which she will probably be able to maintain her equilibrium.

Therefore the treatment in this case may be summed up by attempting to confer on the child a sense of security, with freedom to grow at her own pace, this freedom necessitating guidance and a companion interpreter. She has been given concrete ideals toward which to grow.

In conclusion I have attempted to cover only limited aspects of the tremendously large field of malnutrition and to show certain cases which illustrate each of the three parts of this paper. I have divided the ladder of malnutrition into three rungs with specific suggestions as to climbing from the bottom rung or acute malnutrition to the top of the ladder, or the normal child.

DISCUSSION

Dr. Aldert S. Root: I am sorry I was out of the room when the first part of this paper was delivered but want to compliment Dr. Hunt on his presentation of malnutrition and think that he has done it well and scientifically.

Fortunately we do not see the cases of severe malnutrition now that used to come to us so frequently. This is due to two factors, the improved methods of feeding of infants and the lower incidence of dysentery, which in turn is due to the more general sterilization of milk, the use of such products as evaporated or Klim milk in the country, and better hygienic conditions. We still see, however, some of these cases, infants greatly underweight, markedly dehydrated with gray, dusky skin, due to the increased cellular elements of the blood and slowing down of the blood stream, and with depressed vitality. In any such case the most important measures are to relieve dehydration, and to give these babies some fresh blood upon which to build, through the agency of blood transfusions.

The dehydration may be relieved by hypodermoclyses of normal salt solution, or if there is vomiting, by Hartmann's buffer solution, or by the more modern treatment of intravenous glucose drip. This latter method is the ideal one as Dr. Hunt has pointed out. Very few of these little patients make an uninterrupted progress unless they have blood transfusions and usually more than one is required before the child will be well on the way towards convalescence.

In cases of anemia in older children I think it is generally recognized that iron in conjunction with copper is more effective than iron alone, although we have observed that several of our patients tend to be nauseated when this combination is given. A factor in older children who have poor appetites and hence are anemic, is over-fatigue, and I am inclined to feel that we do not pay quite enough attention to this.

Dr. F. C. Turley (Kinston): Regarding acute malnutrition or marasmus, as Dr. Root has emphasized, I think the most important thing in these children is to restore their blood volume and restore the chemistry of the blood primarily through replacing the water loss and the addition in the solution of electrolytes, which will tend to properly balance the chemistry.

In regard to the continuous intravenous drip, there was a great deal of comment pro and con when this was first introduced. Several of the men looked at it skeptically because of the fact that we were introducing a drain into the bloodstream, and the possibilities of infection and septicemia were considered. However, I think this danger was a little overdrawn, and in my limited experience I have not had any difficulty with it.

I have found it particularly valuable in these children where you have a dickens of a time getting any vein, and the repeated operation to expose the vein is undesirable. I had one case recently of pneumonia in which the child refused all fluids. The child was in the oxygen tent, and the veins of the ankle were about the only ones accessible. I started a continuous intravenous drip on this child using 10 per cent glucose and Hartmann's solution alternately, and in thirty-six hours there was a remarkable improvement. Of course, possibly it might have occurred otherwise because it was at the time of the crisis, but it made me very enthusiastic about it.

In regard to the anemia I think the question is in the air at present. The workers in this country certainly believe that the copper acts as a catalytic. On the other hand, there have been quite a few articles written recently by Swedish writers who say copper has very little to do with it. They stress the importance of ferrous iron, as Dr. Hunt has brought out. They say further that cow's milk and human milk contain sufficient copper. As I say, that question is certainly not definitely decided.

Regarding insulin, I think we have a very useful drug here in malnourished children to start them back on the road to recovery. There has been a great deal of talk recently about the possibility of the insulin stimulating the pancreas to over-function and to the condition that we know of as hyper-insulinism. This was a logical thought in view of the fact that over-endocrines sometimes work this way. However, I think this has been pretty definitely disproved by one of the recent articles in one of the late journals of the *American Journal of Diseases of Children,* where several of these children were studied and no evidence of hyper-insulinism was discovered. I want to emphasize in using this treatment that it is very important to have your children under close observation. I had two children in the hospital recently with quite a bit of infection, and they had no appetities, which I was trying to stimulate to some extent. Small doses of insulin were used, as I remember, three or four units, about thirty minutes before meals. These children were so full of infection that our results were not successful, and both of these children developed definite insulin shock requiring intravenous glucose.

Regarding his last group of the child-mother problems, I think this is a very important question, and one that we don't think about enough. I want to thank Dr. Hunt personally for his advice to me when I started practice concerning this problem. Two of the first patients I got when I started practice were children that had been to everybody else in town. There was not a blame thing wrong with them, but the unfortunate part of it was they belonged to the best and wealthiest families in Kinston. The consultation with previous doctors had been more or less thus: "There is nothing the matter with your child." That does not satisfy a mother. "Leave him alone, and he will eat." I think the most important thing is to sell the mother on child psychology, and at least 25 per cent of the children that I see are children with the sole and chief complaint presented by the mothers, "Doctor, my child does not eat." It requires a great deal of patience but on the other hand I think doctors who are willing to study these children, to study their relations with their mother, to study fatigue, and to study all these other aspects that enter into a problem child, will be well rewarded because as far as I am personally concerned the 25 cases that I have had that had no other aspect in their condition than a psychological one have been very, very remunerative.

Dr. John R. Ashe (Charlotte): I was so much impressed with the advantage of the use of insulin and glucose on one case that I want to briefly describe it. This little child, a little under two years of age, was sick ten days with bronchial pneumonia, a discharging ear, and a right side facial paralysis. We had quite a struggle. She was a hospital baby. For three months we couldn't clear up the chest. After being in the hospital for about two weeks without any improvement in the ear condition a mastoid was done, following which we were still having considerable trouble. We couldn't get the child to eat, and she was steadily going down. One month after the mastoid operation was done there was absolutely no healing in the mastoid wound. It looked just like it did the day after operation was done. About that time I ran into some work that Rabinowitz had done in Montreal on delayed surgical healing. He had demonstrated the fact that delayed surgical healing was caused by a definite disturbance in sugar metabolism. We did a blood sugar on this. It showed 90 milligrams, but the child was so far downhill that probably it meant that she had a little bit more sugar than she would normally have. We couldn't be sure of that but we began giving her glucose and insulin. We gave it under the skin, 6 per cent of glucose under the skin twice a day, at the same time giving some insulin. Within three days we had quite marked evidence of healing in that mastoid wound, and from that point on the child's progress was very, very good, so I couldn't help but get up and give you a brief description of this case to emphasize the great importance of glucose and insulin. (Applause)

SECTION ON GYNECOLOGY AND OBSTETRICS

Dr. John Lester Ranson, *Chairman,* Charlotte

TUESDAY AFTERNOON SESSION

May 1, 1934

The Section on Gynecology and Obstetrics of the Medical Society of the State of North Carolina convened at two-thirty p. m., in the Ladies' Card Room, the Carolina, Pinehurst, Dr. John Lester Ranson, of Charlotte, presiding as Chairman.

Chairman Ranson: We are delayed in starting our program on account of luncheon.

Before we start the regular program, I want to appoint a committee to judge the papers in this Section for the Moore County Cup Award. I am asking Dr. Otho Ross, of Charlotte, Dr. Utley and Dr. Proctor to act on this committee.

EPIGASTRIUS PARASITICUS

Dr. D. T. Tayloe, Jr., Dr. John C. Tayloe,
Tayloe Hospital, Washington

With Report of a Case Successfully Treated Surgically

Epigastrius parasiticus is a twin monster, the parasite being small and incomplete and attached to the autosite in the epigastric region. The cause of this congenital malformation is not definitely known, but it is thought to be due to a double fertilization of a single ovum. This condition is exceedingly rare. These twin monsters are usually prematurely born, stillborn, or survive only a short while after birth. Attempts to separate the parasite from the autosite surgically have been unsuccessful with the exception of a very few cases, hence it must be borne in mind, regardless of how simple the operative procedure may seem, that the mortality in these cases is terrifically high.

In reviewing the literature on this subject, the writers were able to find only four cases reported that had been successfully separated surgically. These cases were reported by Beck, H. E. Andrews, Franke and Seynsche. It would seem that the success of separating the parasite from the autosite depends upon the size and contents of the pedicle connecting the two. All of these twin monsters are very similar, differing only in the development of the parasite and the size, number, and contents of the pedicle which connect the two. The following is a history and description of the case here reported:

The patient is a white boy baby six hours old, the second child born to these parents. The mother and father are well developed, healthy white

people. The first child died in infancy of pneumonia. There is no history of a monstrosity being born to members of either family. This child was delivered by Dr. Jim Mann of Lake Landing, N. C., who states that the delivery was normal, which is peculiarly true in most of these cases. The mother did not accompany the child to the hospital. Dr. Mann brought the baby with specific orders from its parents that the parasite be removed immediately at any risk, thus relieving us from all further responsibility.

Physical examination of the autosite and parasite:

The baby is a well developed, white male child, six hours old with a perfectly well developed lower half of another baby attached by a soft pliable pedicle to the mid-epigastric region of the autosite. The parasite was freely movable in all directions. The autosite was entirely normal in every detail with the exception of a large umbilical hernia. The autosite would respond to a hard stick with a pin into the parasite. The twin monster weighed 8¾ pounds, the autosite weighing 7½ and the parasite 1¼ pounds after separation. Physical examination of the autosite revealed normal head, ears, eyes, nose, mouth and neck. Chest well developed, lungs resonant and breath sounds normal. Heart normal in position, rhythm regular and sounds normal. Abdomen is somewhat distended, but on palpation no masses could be felt, entire abdomen being very soft. There is a large umbilical hernia, the coverings of which were so thin that the coils of the intestines could be seen through it. The umbilical cord was still intact. Extremities of the autosite are normal. The parasite was attached at the mid-epigastric region by a thin, soft pliable pedicle. The pedicle was 2½ inches in longitudinal diameter and ½ inch in thickness. On crying there was a bulging at the attachment of the pedicle connecting the two and transillumination revealed nothing. The parasite consisted of a well nourished and well developed lower extremity inclusive of the pelvis. The parasite was of the same sex—male, as the autosite, as is true in all cases. The pelvic bones were normally developed with apparently normal musculature, the femurs, tibia and fibula, tarsus and metatarsus and phalangeal bones being normal. There was an imporforate rectum, which is true in practically all instances. The external genitalia consists of a well developed penis and scrotum, but no testicles. No urine was ever passed by the parasite. The pelvic cavity of the parasite contained 5 rudimentary structures which could not be identified macroscopically. A section of these structures and microscopical examination showed them to be epididymus, testicular and prostatic tissue. The two cord-like structures contained a number of well formed arteries, and several veins. Some of these were partly occluded by young fibrous tissue.

Operation: Baby was 27 hours old at the time of operation. Surgeon: D. T. Tayloe, Jr. Usual preoperative preparation carried out. The base of the pedicle at its junction with the parasite was infiltrated with ½ of 1% novocaine. A circular incision then made around the base of the pedicle at its junction with the parasite. The dissection was gradually carried through the pedicle, in which only two structures were encountered,

these being cord-like and consisting mostly of arteries and veins. Both of these were clamped and tied without attempting to investigate where they terminated in the autosite. The peritoneum of the autosite was not opened. The wound was closed, using catgut for the fascia and silkwormgut for the skin. The operation was rapid and bloodless and was not accompanied by or followed by shock. The child made an uneventful recovery and was discharged from the hospital three weeks later in good condition. This baby was fed on a dry milk formula and thrived rapidly. The child was admitted to the hospital on February 10th and was discharged on March 8, 1932.

We have had this patient to report to the hospital on a number of occasions during the past two years, and when last seen, about six months ago, he was doing fine. He still had a large umbilical hernia, which will demand an operation to be cured.

Gross Description: Specimen consists of apparently normally formed parasitic lower extremity and pelvis, with wound of separation from the autosite being an oval space 1½″ x 1¼″ after being formalinized. Penis and scrotum well formed but no testicle found in either side. The lower border of this space is a half inch above the base of the penis. A frame of fatty tissue surrounds a central space about ¾″ in diameter in which fine structures are noted and described below grossly and microscopically.

Specimen No. 1: Diagnosis—Blood vessels. From the anterior part of the wound in the midline is a thick walled tube of 2.5 m.m. and 6 m.m. length which looks like an artery. Microscopically is seen two relatively large arteries with all of smaller size. There are numerous other thin walled small blood vessels. There is a structure which looks like one of the larger arteries, the cavity of which is mostly filled with a loose network of young connective tissue. All of these structures are held together by well formed connective tissue. At the border of the section is seen a mass of the loose thin connective tissue as above described. This appears like mucous tissue. Overlying one corner of the section is an oval piece of glandular epithelial tissue similar to that seen in specimen No. 3. This was probably picked up on the microtome knife or in staining.

Specimen No. 2: Diagnosis—Epididymis. From anterior part of wound just posterior to No. 1 and in the midline it is oval with a smooth slick surface and is firm and elastic. Microscopically it consists of cords of epithelium, some arranged longitudinally and some being cut in cross section. Each is lined with columnar epithelium, and a few show a suggestion of a central lumen. The mass is divided into lobules by trabeculae of connective tissue and the whole is surrounded by a connective tissue wall. On one side the fibrous tissue is a thick mass containing a fair number of blood vessels and on the other the wall is fairly thin.

Specimen No. 3: Diagnosis—Testicle. Removal from the anterior part of the wound just to the left of No. 2. It is slightly more than half the size of the latter and is of the same gross appearance. Microscopically it

consists of closely arranged alveolar each lined with several layers of specialized columnar epithelial cells. The lumen is open except for the presence of some epithelium is found loose.

Specimen No. 4: Diagnosis—Prostate. Removed from the posterior part of the wound slightly to the left of the midline. Grossly it is similar to Nos. 2 and 3. It measures 2x2x1.5 m.m. Microscopically it consists of several lobules of epithelial alveolae. Some of the alveolae are rounded, some are oval, and others are elongated, appearing like tubules. They are lined with a single layer of columnar epithelium, and the lumen are clear.

Specimen No. 5: Diagnosis—Arteries and Veins. Specimen taken from posterior part of wound in midline close to No. 4. It is a cord 5 m.m. long and 1.5 m.m. wide. It consists of one relatively large well formed artery and numerous smaller arteries and veins. In the middle is a lymph nodule making up about one eighth of the section.

DISCUSSION

Dr. I. M. Proctor (Raleigh): Mr. Chairman, Members of the Section and Visitors: This case clearly demonstrates to my mind the necessity for us not to give up any patient as hopeless. Such abnormalities we usually look upon as necessarily fatal, and such a termination is frequently welcomed. Dr. Tayloe has shown us by investigation and surgical skill his ability to make an apparently normal individual out of one that was born greatly handicapped. We welcome to this Section the report of such work.

DIETARY DEFICIENCIES IN PREGNANCY

By Dr. Ernest W. Franklin, Jr., Charlotte

The growing information about the formerly unsuspected dietary essentials called vitamins has begun to afford intelligent appreciation where obscurity formerly prevailed.

Many of the ills that can be associated with diet in pregnancy are closely associated with the use of vitamins in the body.

It is not fully realized by many that an adequate supply of vitamins in the diet of the pregnant woman is more important than at any time during her existence. Then, too, vitamins have a marked bearing on the vitality and chances of survival of the fetus.

The specific deficiency diseases, with the possible exception of scurvy, can be produced as uncomplicated syndromes only by carefully planned experimental diets. The pathological condition produced by dietary deficiency is usually a complicated one when the diet is deficient to such a pronounced degree as to cause symptoms. The defect which produces the most prompt and most visible pathological picture is that resulting from the lack of an antineuritic substance, vitamin B.

In considering the vitamins in alphabetical order, we will discuss vitamin A first. Its place in the diet of pregnancy is one of paramount

importance. When we consider the beginning of pregnancy we learn it affects ovulation. The vaginal changes of oestrus in rats are prolonged in rats fed on a very low vitamin A content diet. This is characteristic of a maturing follicle without rupture. Thus, ovluation does not readily take place on a very low vitamin A content diet.

It is not proven that vitamin A is stored in the fetus, but it is known that a goodly supply is necessary for growth. It is reasonable to expect that if the fetus is starved of vitamin A not merely may it begin life without its usual reserve, but it may suffer from keratomalacia.

A lack of this substance in the mother predisposes to diarrhea, poor appetite, and an increased tendency to respiratory infections.

When we approach labor we have good evidence tending to show that a good supply of vitamin A is prophylaxis against puerperal infections. If there is anything we need in obstetrics it is prophylaxis against puerperal infections. The usual accepted explanation of the frequency with which puerperal sepsis develops is that women during labor are more exposed to external infection. This is undoubtedly true, and might be accepted as a full explanation if all straightforward parturitions without intervention, or even parturitions carried out with the most complete asepsis practicable, escaped this complication. Unfortunately, modern obstetrical technique has not had the complete success which would be expected if this were the whole explanation.

Deficiency of vitamin B will affect pregnant women just as it affects the general population, and when pregnancy is present the disease is apt to cause most serious consequences. It is far reaching in its effect on the body metabolism, on the blood forming function, on the central nervous system, and on the digestive function of the stomach.

Further work needs to be done on the effect of the milder forms of vitamin B starvation and the question of the relation of a tendency to postpartum hemorrhage in the mother, and hemorrhages in the newborn brought about by this deficiency. Moore and Brodie report a case of severe postpartum hemorrhage with death of the mother. Her baby died of hemorrhage on the fifth day. The mother had been on a very deficient diet. The examination of some of the nerves showed a degeneration similar to that seen in Beri-beri. The cause of hemorrhage and degeneration of nerves was believed due to vitamin B deficiency.

Polyneuritis of pregnancy was first described by Whitfield in 1889. Physiological vomiting of pregnancy usually begins in the first two months of pregnancy, if I may be allowed to call it physiological. The neurological signs and symptoms usually appear in the third month of pregnancy. They are symmetrical and bilateral. Motor signs vary from weakness, usually extensor, to complete inability to move the part. "Steppage gait" may be present with foot or wrist drop. Incoördination is seen with tremors and loss of tendon reflexes. Pain is present with extreme tenderness over the part. Hyperasthesias and anasthesia of the "glove stocking" variety may be present. They are generally most marked in the lower extremities.

It is first thought to be hysteria since the subjective symptoms are more marked than the slight objective symptoms of anesthesia and paralysis. As the condition progresses, the paralysis of the legs is more pronounced. The arms are likewise involved. The series reviewed, in which the gastric analysis were done, showed a decided diminution of Hcl and in some a total lack of Hcl. Anemia was extremely common.

Bercowitz and Lufkin reported fifty-two cases studied. The picture of pathological and clinical changes was similar to that given above. The pathological changes seen in the nerves of those going to autopsy were of a degenerative character. The anterior horn cells were degenerated to some degree in all cases. It was most marked in the lumbar region. Petechial hemorrhages in the spinal cord were noted frequently. Even these lesions were less conspicuous than the severe clinical symptoms would indicate.

Occasionally a weakness due to inanition may be confused with this clinical entity. A neurological examination will distinguish the two.

Maxwell says infantile Beri-beri is probably due to a vitamin B deficiency. The deficiency during the uterine life and a lack of the substance in the milk which is essential to the growth of a child's nervous system is the cause. In the acute type in babies from birth to three months, there are several convulsions and sudden death from acute heart failure. In less fulminating cases vomiting, dyspnea, dysphagia, and aphonia may precede heart failure. In chronic cases periodically there are vomiting attacks and progressive weakness. In neither form is there any paralysis unless the aphonia is due to paralysis of vocal cords.

At this point something might be said about the treatment of polyneuritis cases with fluids. Cowgill says that if the system is flooded with fluids, there is a temporary improvement followed by exaggerated symptoms unless vitamin containing nutrition is given at the same time with the glucose and water. His experimental work was on animals. Instead of animals being protected by flushing with fluids they are more weakened by increasing the vitamin deficiency. Vitamin B deficiency is not a toxemia according to Cowgill. The excess of fluids washes out the loosely attached, water soluble, vitamin B factor from an already depleted body. The storage of vitamin B is very limited. The vitamin B complex intake requirement of an animal is significantly increased when the metabolic rate is increased by thyroid administration. There is a 20% or more increase of the metabolic rate in pregnancy. This fact, in view of Cowgill's observations, would make logical the assumption that vitamin B complex is endangered even during normal pregnancy.

These patients have responded to iron and food rich in vitamins, particularly cereals, milk, beans, and citrus fruits. Polyneuritis in the mild manifestation is benefited by heat, massage, and sedatives.

Recently Sure and Smith demonstrated that vitamin B, in addition to being an influencing factor in controlling the plane of nutrition, also exerts a specific effect on lactation. It is characterized by the growth and survival

of nursing young unrelated to food and water intake. It has become evident that lack of vitamin B per se produces a marked reduction in the glycogen content of the livers of nursing mothers, nursing young and even in non-lactating rats. Thus, we conclude that an ample supply of vitamin B is necessary in the diet of a nursing mother.

Underhill points out that pellagra in any individual, whether pregnant or not, may have one of the symptoms, e.g., diarrhea, predominating. If it is a disease entity, why is one symptom predominating? Vitamin B deficiency as the whole causative agent should be accepted with some caution. In other words, vitamin B deficiency and pellagra should not be used synonymously. There is no doubt that diet plays a predominant role in the prevention and cure of pellagra. It remains to be seen whether the poor showing seen in vitamin therapy in some cases is an argument against the specificity of vitamin B or is indicative of changes due to pellagra making the vitamin ineffective.

In the reports reviewed, many treatments were outlined, but all used foods with high vitamin B content; so evidently the diet was considered most important. Most of them stated that it was easier to prevent than to cure.

When we come to speak of a deficiency in vitamin C, the antiscorbutic vitamin, we are faced by the fact that one very rarely gets this deficiency apart from deficiencies in other vitamins.

We do not know whether the infant is born with a reserve of vitamin C or not. Shipley has pointed out there are only a few cases of infants having recognizable scurvy before nine months of age. Barlow has described a disease that is a combination of scurvy and rickets in infants. The child may have a mild manifestation of scurvy, yet no sign is seen in the mother. C. B. Liu reports a case born apparently normal. On the seventh day of life a swelling occurred in the right knee with fever. This developed further until on the thirty-third day of life it presented a typical picture of scurvy. Treatment with orange, lemon, and tomato juices produced a steady improvement and the patient was perfectly well two months later.

Vitamin D is so closely connected to calcium and phosphorus metabolism that it is best discussed with them.

Vitamin E deficiency causes sterility. Sterility is a condition I wish to avoid in this paper. We know there are many causes of sterility other than dietary deficiency. Nevertheless, we should speak of the results of diet on sterility. In studying this deficiency, the question arises as to whether it is not due to a faulty implantation of the ovum. In rats the earliest stage of pregnancy, ovulation and fertilization, are not stopped in those that have a deficiency in vitamin E. About fourteen days after a fertile mating the majority of the females give a "placental sign" which is slight bleeding. Examination shows an abnormal placentation and sometimes reabsorption of the fetus. How far a similar process may go in man is unknown.

A report of the results of treatment in twenty cases of habitual abortion and five cases of idiopathic sterility showed the following results by the use of (Fertilitan) a wheat germ prepared in oil. Wheat germ is an aggregate of cells (1¼% of the grain) from which new germ grows. It is an excellent source of vitamin E and fair for vitamins A and B. It has a good mineral content. The patients used were free of organic causes of sterility. In seventeen of the twenty cases of habitual abortion living children were born after the use of this wheat germ oil and wheat germ. Two living children were born to the five sterile cases. The mode of action is little understood. All of these patients had been on what was considered an average diet. It was suggested that the increased metabolism of the mother increased the vitamin requirements in the diet. The increased demand of the fetus is partly responsible for gestational disturbances. No harmful effects were noted by using this oil.

Of all the minerals only calcium and phosphorus will be discussed. An unusual amount of calcium is needed during pregnancy. The amount of calcium needed increases six times during the last twelve weeks. When we think of calcium deficiency we usually think of osteomalacia in adults and rickets in infants. Milder conditions may result, also giving signs and symptoms discussed.

There is abundant evidence from Maxwell's work in China, and Green-Armytage in India, and others, that osteomalacia is a deficiency disease of calcium and vitamin D. One is necessary to the other. Osteomalacia must have an earlier stage than the one which is characterized by marked bony deformities. The amount of suffering that the mother must bear in the milder forms of the malady is considerable. She suffers from constant low backache, spasms of the adductor muscles of the thigh which prevent proper walking, and may make vaginal examination very difficult; softening of the pelvic bones, especially rarefaction about the pelvic joints, leading to instability in walking, and the possibility of the pubic symphysis giving way under strain. These patients are apt to suffer from paraesthesias, numbness of the hands and feet, or actual tetany. One meets a case occasionally in which the mother is annoyed by excessive movements of the fetus in utero. The excessive movements cease on supplying calcium and vitamin D.

The effects on the baby should be considered. Green-Armytage states that in osteomalacia the fetus also suffers from the lack of calcium. When born it is "skinny" and its long bones are poor in ostrin and chondrin. The epiphyseal zones are irregularly calcified. Maxwell reports six cases of fetal rickets proven by X-ray studies and autopsy findings.

At birth all of the temporary teeth are calcified and the crowns of the permanent molars are particularly calcified. Hence, it might be expected that the mother's diet would exert an influence on the type of teeth produced in the fetus.

A high calcium and phosphorus content of the diet during lactation is necessary due to the great losses by way of the breast in the milk. There

is a marked drop of serum calcium at the end of pregnancy and a rise just after delivery. At the establishment of lactation, there is a decided drop again.

The frequency of pregnancies, and interval of time elapsing between pregnancies, is a factor in considering osteomalacia. Vitamin D and calcium are of particular value in women who have frequent pregnancies.

After reviewing the literature on this subject, I wonder if we have not complacently said the fetus cannot suffer as long as there is any of the substance needed in the maternal body. It does seem to have a preference, but isn't there a point past which the maternal organism will not move to provide for its young. In other words, the mother preserves herself rather than give the baby the last of a life-sustaining substance.

TABLE OF VITAMINS

	Food Factor or "Vitamin"	*Results of Deprivation*	*Food Sources*	*Stability*
Fat-soluble	A	Poor growth. Impaired nutrition and resistance (especially respiratory infections.) Xerophthalmia.	Butter (cream), green leaves and vegetables egg yolk, liver and organs, cod liver oil.	Destroyed at high temperatures in presence of oxygen. Very little destroyed by canning processes.
	D	Rickets. Osteomalacia. Poor tooth development.	Butter (cream), egg yolk, fish, oils, cod liver oil.	Resistant to heat and oxidation. Not destroyed by canning processes and pasteurization.
	E	Sterility in the male. Foetal deaths during period of gestation.	Meat, fish, egg yolk, cereals, green vegetables, wheat germ.	Resistant to heat. Not destroyed by cooking.
Water-soluble	B-1	Poor growth, poor appetite, beri-beri, polyneuritis, nervousness, constipation.	Fresh fruits and vegetables, whole cereals, yeast, wheat germ.	Heat stable in acid medium. Heat labile in neutral or alkaline medium. Partially destroyed by cooking or canning.
	B-2	Poor growth, poor appetite, pellagra, skin eruptions.	Same as for B-1.	Heat stable. Not destroyed by cooking or canning.
	C	Scurvy. Poor tooth development. Retarded growth.	Tomato, green vegetables, raw citrus fruits.	Most unstable of the vitamins. Large part is destroyed by cooking and canning.

Vitamin B is composed of two factors, B-1, also called "anti-neuritic factor," "B-P or beri-beri preventing factor," "vitamin F," and sometimes simply "vitamin B"; B-2 also called "P-P or pellagra-preventing factor," "vitamin G," and sometimes simply "the growth factor." Note that both factors are essential for growth.
Only the richest known food sources are named in the table. Fresh, whole milk contains all the known vitamins but is not a particularly rich source of any one. In the table the last named food source is the richest.

DISCUSSION

Dr. W. Houston Moore (Wilmington): Dr. Franklin has so thoroughly covered the subject that he has left very little to be added to it. He has demonstrated that he has spent a great deal of time and effort in the preparation of this paper. It is a very scientific paper.

There is one thing I would like to speak about, however, and that covers some of the practical points of the diet in pregnancy. You know there has been very little progress made in the last twenty-five years in

obstetrics, excepting pre-natal care; and diet is a great essential, in fact the greatest single factor, in pre-natal care. A woman, when she is pregnant, needs a well balanced diet, a variety of many kinds of food. It has been said by some authority that it should contain 15 per cent protein, 25 per cent fat, and 60 per cent carbohydrate.

When a woman is pregnant, her first desire is to go through that pregnancy absolutely normal and to be restored to a normal condition when pregnancy is over. Her second desire is to bring into the world an offspring, a baby, that is in perfect health and normal in every respect. In order to do that, she must have a varied, well-balanced diet. If she fails to get this out of her diet, her own system is called upon to furnish this for the baby.

It is a biological rule in all creation that the necessities of the baby come before those of the mother, and the baby is practically a parasite living on the mother. The necessities of the baby come first, and if the mother's reserve can no longer supply them, then her body organism is called upon to furnish them. Her reserve in some cases is scant and insufficient, and then her body suffers to furnish those necessities for the baby.

She must have enough of the elements, the food elements, that go to build bone, such as calcium, phosphorus and all the various elements. If she does not get them in a diet, her own system is called on to furnish them; her teeth, being the most available supply, will begin to suffer first. She will have soft spots come into the teeth, later cavities. Second, her skeletal system will suffer. It is not so easily demonstrated, but it is there just the same. If a woman is properly dieted, she can go through pregnancy without any tooth decay, without any destruction to the skeletal system. If she gets it out of her food, she has plenty to supply to the baby.

The same could be said of the nervous system, the circulatory system, the liver, and other organs; all of those systems suffer if she does not get the proper diet. A great many women become toxic and nervous because their nervous system is being called upon for those elements to build up the nervous system of the fetus; and if the mother is properly dieted, she will avoid all of that. When she becomes nervous, her digestion and her elimination do not go on as they ordinarily should, and she becomes toxic, which later on may lead to eclampsia. The mother should be dieted and taken through pregnancy without any destruction to her own body mechanism.

Here is a vitamin table that was sent to me by some drug house that I always like to read to my patients when I am instructing them about the diet. It is a deficiency table. As you notice, Dr. Franklin's paper was on "Dietary Deficiencies." It is easier to demonstrate it that way, in the negative rather than in the positive. Vitamin A—if one is deprived of Vitamin A the results are poor growth, impaired nutrition and resistance, especially to respiratory infections. Xerophthalmia is apt to develop.

The sources of Vitamin A are found in butter, cream, green leaves and vegetables, egg yolk, liver and other organs, and cod liver oil. Vitamin A is destroyed at high temperatures in the presence of oxygen. Very little is destroyed by cooking and canning processes, so you can use canned goods and have a fair amount of Vitamin A, although not as much as the fresh ones contain.

Vitamin D deficiency is apt to result in rickets, osteomalacia and poor tooth development. The sources that Vitamin D are found in: butter, cream, egg yolk, fish oils and cod liver oil. Those are practically the same sources in which Vitamin A is found. If you get Vitamin A, you are apt to get Vitamin D. That is resistant to heat and oxidation. It is not destroyed by canning processes and pasteurization. Your pasteurized milk contains a fair amount of Vitamin D although not so much as raw milk.

A deficiency in Vitamin E produces sterility in the male and fetal deaths during the period of gestation. Many abortions and miscarriages may be attributed to deficiency of Vitamin E. That is found in meat, fish, egg yolk, cereals, green vegetables and wheat germ. That is resistant to heat, and not destroyed by cooking.

Vitamin B is composed of two factors, B-1, also called anti-neuritic factor, and B-P, or beri-beri-preventing factor. Deficiency of B-1 produces poor growth, poor appetities, beri-beri, polyneuritis, nervousness and constipation. The sources are, as you know, fresh fruits and vegetables, whole cereals, yeast and wheat germ. Heat stable in acid medium. Heat labile in neutral or alkaline medium. Partially destroyed by cooking or canning.

B-2 deficiency produces poor growth, poor appetite, pellagra and skin eruptions. The same sources in which B-1 are found also apply to B-2 or P-P; that is, fresh fruits and vegetables, whole cereals, yeast and wheat germ. B-2 is heat stable, not destroyed by cooking or canning.

Vitamin C deficiency produces scurvy, poor tooth development, retarded growth. The sources Vitamin C is found in are tomato, green vegetables, raw citrus fruits. It is the most unstable of the vitamins. A large part is destroyed by cooking and canning, so while any raw vegetable or fruit contains a fair amount of Vitamin C, they must be eaten raw in order to obtain it. Citrus fruit, tomatoes, lettuce, coldslaw, celery, things that most people like are the sources Vitamin C is found in, and it should be prescribed in abundance for all pregnant women.

When you sum it up, it is not such a large variety that you find all these vitamins in. You have your butter, your cream (that takes in milk), liver, cod liver oil, which most doctors prescribe to a patient during the course of pregnancy at one time or another, eggs, meat of all kinds until the late stages when the work on the kidney becomes burdensome and the protein diet will have to be limited—all kinds of meat: pork, mutton, beef and fowl. One important thing is they should get the whole wheat bread too. Many people fail to stress the importance of getting the wheat germ. To get that, you must have the whole wheat because the polished

flour is deprived of a great deal of that vitamin, which is Vitamin B-1. Of course, when it comes to Vitamin C, your green, leafy vegetables and your fruits, raw fruits and citrus fruits, are important.

I don't think that prescribing the diet alone is sufficient because that diet must be assimilated and next eliminated. In order to have the proper assimilation and the proper elimination, you must have the proper rest and exercise. I think that the best form of exercise for the pregnant patient is walking in the out-of-doors, because when they walk they breathe deeply, they take in more oxygen and eliminate the waste gases, carbon dioxide and other gases, they perspire freely and eliminate a great deal of toxins through the skin, and muscular activity causes the blood to circulate faster through the kidneys, which is the filter system of the body, consequently they eliminate more toxins through their urine. Thirdly, the movement of the body and muscular activity causes their bowel to act better, and they eliminate better by the bowel.

Thank you! (Applause)

Dr. E. W. Franklin, Jr. (Charlotte): I don't want to leave this subject without mentioning very briefly one important matter, iron. I think the blood counts are very important in the routine pre-natal care of pregnant women. It is known that the women during parturition lose something like 1100 c.c. of blood volume and will gain about 500,000 red blood cells in their blood count. That is too much to feel like it is a regeneration in the first two weeks during the parturition, so it is felt that that fluid was evidently gained in the beginning and the blood loss that would be shown by our blood count was evidently a hydremia that is physiological; but a great many cases do develop anemias and should be watched and have frequent blood checkups. Even the hemoglobin sometimes will give you a clue as to what is happening. It is certainly much easier to do than an ordinary urine analysis in prenatal care.

Thank you!

SOME OBSERVATIONS ON ENDOCRINAL THERAPY OF MENSTRUAL DISORDERS

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Hopes for hormones of therapeutic value rose high with each bit of important fundamental research which followed the brilliant work of Allen and Doisy on the isolation of the follicular hormone in 1923. Clinical employment of various of these hormones from pregnancy urine has lead to widely divergent conclusions of their therapeutic usefulness. Our impressions, as previously reported during the past three years, have agreed quite well with the majority of critical clinical studies: little specificity in regulation of the menstrual cycle could be attributed to the

direct action of any one of these hormones upon the ovaries or the endometrium.

It has become evident that the clinical employment of these hormones should be preceded by a complete and thorough diagnostic survey of the patient in an attempt to evaluate the functional physiology or pathology of the glands of internal secretion related to the sex functions. Our endocrinologic diagnostic acumen has not kept pace with the many important discoveries made available to us by trained laboratory workers. Rowe in his "Differential Diagnosis of Endocrine Disorders" has attempted to give us the criteria of normally and abnormally functioning glands of internal secretion. It is my purpose at this time to make a few observations concerning the study of a patient with a menstrual disorder and to consider some special diagnostic procedures which may allow a more specific treatment by indicating or contra-indicating certain practices now employed. Amenorrhea has been chosen as the menstrual disorder for consideration because to my mind it illustrates best the need for a keener diagnostic acumen and for a more specific critical therapeutic approach.

Amenorrhea is a symptom and not a disease and this fact should be in mind constantly to avoid the haphazard use of symptomatic and empirical treatment. Much of our endocrinal therapy at present, as in the past, can be summarized as being the administration of "ovary for amenorrhea" which to our minds in most instances is scarcely more rational than "hysterectomy for hysteria." The vast majority of patients with amenorrhea require no treatment, for amenorrhea is not incompatible with good health or even in some instances with conception. While amenorrhea may be the cardinal symptom of some endocrine dysfunction, it must be borne in mind that the maintenance of normal menses is dependent upon the delicate interrelationship of numerous complex factors which may be nutritional, metabolic, gestational, sympathetic, sexual and psychosexual, emotional, germinal, environmental, physiologic and pathologic.

Diagnosis: Non-endocrine factors should be excluded as etiological by a careful and complete history, physical examination and routine laboratory studies. A careful evaluation of the patient's primary and secondary sexual characteristics should be made with the view of discovering stigmata of deviation from normal femininization. Other routine studies include mensuration, basal metabolism, X-ray of the sella turcica, careful study of eye rounds with perimetry, sugar tolerance test and special endocrinal studies to be described later. The purpose of this study is to make a definite diagnosis of hypo- or hyperfunction of a single primary sex gland, rather than vague "pluri-glandular syndromes."

Special endocrinal studies: The Frank test: Negative or low values for theelin in the circulating blood may indicate either anterior lobe or thyroid hypofunction as well as primary ovarian hypofunction. Low blood values for theelin may be associated with an increased urinary output of

theelin (hyper-hormonal amenorrhea of Zondek). An increased blood level of theelin is encountered rarely.

The Fluhmann test: Definite amounts of the so-called "anterior pituitary hormone" in the blood of amenorrheic women eliminate anterior lobe hypofunction.

Technical disadvantages of these two tests which include the maintenance of a large rat colony, the time-consuming extractions, injections, bio-assays and tissue preparation for microscopic study, render these two tests unpractical and often impossible as a part of general routine study.

Study of endometrium and measurement of uterine depth: Hypoplasia of the uterus should be measured by a calibrated sound. Mazer and Goldstein consider a uterus less than 3½ cm. in depth hopelessly hypoplastic.

The endometrium, if carefully studied with reference to its cyclic phase, may be used as a trustworthy indicator of hormonal activity and in certain instances may allow interpretation of the cyclic activity of the ovary. An endometrium which is stimulated solely by theelin will show glands only of interval type with the characteristic pattern of hyperplasia of the endometrium as emphasized by Burch and his co-workers. If pre-menstrual glands are seen, it must be assumed that cyclic changes have occurred in the ovary resulting in ovulation and corpus luteum formation; in such instances absolute deficiency in theelin or corpus luteum hormone is eliminated for progestational proliferation cannot occur except in endometria stimulated by theelin and subsequently brought under the influence of the corpus luteum hormone. An endometrium which shows a persisting pre-menstrual type of glands may suggest persistence of a corpus luteum, lutein cysts, or "hyperluteinization."

Urinary excretion studies of hormones: The increased excretion of theelin in the urine has been mentioned previously. The presence of the so-called anterior-pituitary hormone as characterized by the production of "blood points" or corpora lutea in the ovaries of immature rodents is pathognomonic of a gestational process. The presence of the so-called anterior-pituitary hormone in the urine as indicated by the production of follicle ripening in the ovaries of immature rodents without the hemorrhagic or lutein changes mentioned above allows diagnostic inferences to be made. This reaction, according to Zondek, is observed in 40 per cent of women who have had X-ray castration; such a positive test would indicate complete cessation of ovarian function. Such a test is positive after surgical castration. Unexplained positive tests may center suspicion upon possible malignancy of the internal genitalia.

Indications for endocrinal therapy: Treatment is not indicated in all patients in whom a definite endocrinopathy is diagnosed by these careful studies. The treatment should be indicated for something more than a simple regulation of the menses. Among the condition in which intensive endocrinal therapy is judged indicated are: stigmata of endocrinopathy

such as obesity, hirsutism, etc.; primary hypogonadism usually associated with hypoplasia of the internal genitalia; secondary hypo-ovarianism, hypopituitarism or hypothyroidism causing amenorrhea in young women who are still desirous of conception; in certain syndromes such as endocrinal headaches associated with amenorrhea; in hyperplasia of the endometrium during its amenorrheic phase. Treatment in such instances has a definite purpose other than the regulation of menses: the prevention of secondary uterine atrophy; the correction of sigmata; the treatment or prevention of ovarian or uterine sterility; the relief of disagreeable symptoms associated with amenorrhea; the prevention or the treatment of menorrhagia in young women due to hyperplasia of the endometrium aimed at a preservation of normal sex life.

Therapeutic agents which may influence sex functions: Preparations from pregnancy urine: The preparations include theelin, theelol and the so-called anterior-pituitary hormones. Theelin and theelol have practically the same effect. A summary of the effects to be expected from these includes: growth of the uterus; production of hyperplasia of the endometrium in the absence of corpus luteum function; production of the interval type of endometrium and stimulation of this endometrium for further action by the corpus luteum hormone; no ovarian effect; possible depressing effect on the anterior lobe of the pituitary.

The effect to be expected from use of the anterior-pituitary hormone, so-called, as judged by our observations and studies on the ovaries and endometria at operation of women who have received injections of these hormones is summarized: ovulation has not been initiated by these injections and therefore corpus luteum formation has not been produced; the pathological findings in the ovaries and endometria in hyperplasia are not rectified; follicle stimulation with cystic degeneration and failing ovulation and subsequent pseudo-lutein changes is the characteristic finding; this cystic degeneration does not differ materially from that seen in hyperplasia.

Preparations from the anterior lobe of the pituitary gland: A few such preparations are available. Clinical studies have not been sufficient to justify any conclusions as to the merits of these preparations.

Corpus luteum hormone: It has not been proved definitely that the human corpus luteum has any secretory function. An attempt to verify this supposition is in progress in collaboration with Doctors Pratt, Burch, and Kamm. There is no corpus luteum hormone available for clinical use. Reasoning by inference it would be of extreme value. An ovulational hormone would serve the same purpose.

Lactational and thyreotropic hormones: These are just becoming available for study. Statements cannot be made at present as to their clinical merits. The thyreotropic hormone may prove of much value.

Thyroid extract: An explanation of its method of action is impossible. It probably has a stimulating effect on the pituitary and perhaps also on the ovaries. Its effect is specific in correcting hypothyroidism.

X-ray therapy: X-ray radiation is the only medical method by which the menses and abnormal uterine bleeding can be controlled uniformly. No hormone will do this. A number of recent reports, in particular those of Kaplan (1931) and Mazer and Goldstein (1932) have described the beneficial result of low dosage X-ray stimulation of ovaries and pituitary in the regulation of the menstrual cycle. The method of action of the X-ray is not known definitely. Such treatment requires a most meticulous caution in the selection of patients, in the dosage and in the follow-up treatments.

Some contra-indications to certain hormones: Theelin and theelol would seem contra-indicated in the following conditions: surgical castration; X-ray castration; where there is absence of ovulation and corpus luteum stimulation; in hyperplasia of the endometrium.

The anterior-pituitary hormone, so-called, would seem to have in general the same contra-indications as theelin since its primary action in our experience is to stimulate the formation of theelin. We can see no beneficial results of its use in hyperplasia of the endometrium. It should be avoided perhaps in these cases as it may aggravate the already present pathology. It should be used with caution in young girls who show evidence of cystic ovaries.

Results with these various agents in treatment: As we have reported several times previously, our results with preparations from pregnancy urine have been uniformly poor when carefully analyzed and extraneous factors segregated. Until we have the means of inducing ovulation we shall be unable to correct many of these cases. Thyroid extract has corrected more menstrual disorders for us than the other preparations. We have obtained satisfactory results in a number of instances with the use of low dosage X-ray stimulation of the ovaries and pituitary where intensive endocrinal therapy has produced no satisfactory results.

Summary: In conclusion it is to be stressed that patients should be carefully studied with the view of making a definite endocrinal diagnosis before the initiation of treatment. Treatment at the present certainly should be aimed at more than the regulation of menstruation in patients with amenorrhea. It should be borne in mind that one may not only fail to benefit the patient but may even aggravate the condition by the indiscriminate use of pregancy urine extracts. At the present time at least, low dosage X-ray radiation of the ovaries and pituitary when done by skilled roentgenologists in close collaboration with the gynecologist is probably our most satisfactory means of regulating the menstrual cycle.

DISCUSSION

Dr. George W. Johnson (Wilmington): I don't feel qualified to discuss Dr. Hamblen's paper, so I hope that some of the other common practitioners in this audience will discuss it who do not feel any better qualified than I do. It is a very important subject, but frankly I am very much disappointed in Dr. Hamblen's paper. I was hoping he was being

very modest, and instead of giving us some observations on the irregularities, he was going to tell us some preparations that we could use and expect to get a certain percentage of results. He has not done it, although that is what I was hoping to hear.

I have been very much interested in this subject for the past ten years. The more I read about it the more bewildered I become. They say a little knowledge is a dangerous thing, so I guess what I have is dangerous. There is no question about its being an important field, and it is such men as Dr. Hamblen that will have to lead us out of the impenetrable fog that envelops us and wipe away the veil of mystery.

The conception of menstruation, as I have it, in the simplest details, depends upon the anterior pituitary as a governing body. This secretes a hormone called Prolan A or Rho-1, which acts on the Graafian follicles. This puts out thelin or follutein, which activates the endometrium of the uterus making a hyperplasia of the endometrium. The rupture of the Graafian follicle is followed by the formation of the corpus luteum. Then you get the activation from Prolan B, or Rho-2, and when your progestin secretion gets into effect it causes a secretory phase of the endometrium, and this is the so-called nest-building period, and then the withdrawal of follutein, or whatever you want to call it, is possibly the cause of menstruation. That is about as much as I have been able to assimilate. How long that is going to stay put, I don't know. But the thing that I am interested in is when a patient comes to me and says, "Doctor, I have not menstruated for several months," what are you going to do about it? There is no use telling her that she can be in perfect health and still not menstruate. She is not satisfied with that. It is impossible for me to make all these complicated tests, because she can't afford it. I first try to find out if she is pregnant. If she is not pregnant, I try my best to convince her it is not going to hurt her. I have gotten better results, as Dr. Hamblen pointed out, from the thyroid extract rather than from anything else.

I have never used the irradiation, and I am going to sleep over it several nights before I do because I feel it is a pretty dangerous field for you can easily get an over-stimulation instead of an under-stimulation, and it is for such men as Dr. Hamblen to work it out for the general practitioners as to what doses to use and what cases to use them in. At the present time, so far as I am concerned, it is ultra-scientific.

If there is any criticism I have of Dr. Hamblen's paper that is the criticism. Of course, he is talking above our heads, at least above my head, and if the truth is to be told I can say I could not quite follow all of it. (Laughter)

The endocrinologists have given us several things that have been of help to us. Of course the most important thing is the Ascheim Zondek or the Friedmann test for pregnancy. I do not use it so much from a surgical standpoint. The biggest use I find for it is to tell a woman whether to stay single or get married. It is very important then, and it is something the patients will pay for.

Dr. Hamblen hit the anterior-pituitary lobe products pretty heavy. Possibly they need to be hit. I have gotten some results from antuitrins in the functional bleedings. I have observed some results from antuitrins in the pre-menstrual headaches and the pre-menstrual breast pains that some patients are so anxious about. I got into trouble one time with one patient due to the sex element. Whether it was psychic or not, I don't know, but I failed to mention that it might raise the libido. She came back, and that was the result—she got what she didn't want; so that is something you might have to keep in mind.

There is one other preparation which belongs to the endocrinologist's findings, and that is theelin. I have had one case of gonorrheal vaginitis in a child, which has responded to theelin. Of course that is not my work. It has been written up before, but possibly some of you have not seen it, and if you have a girl anywhere from four or five up to ten that has a gonorrheal vaginitis you can bear in mind to give her about 50 rat units of theelin every day for eight or ten days. In this case I mentioned I got excellent results. It is just something for you to carry home with you, and if you don't get results from anything else you can try that.

I enjoyed Dr. Hamblen's paper very much. His paper I consider to be valuable from the standpoint of not what he told us to do but of what he told us not to expect. We would like to get some more reports like this every two or three years so he can keep us straightened out on the right road, and keep us from believing too much of the things these endocrine gland salesmen tell us. I would much rather take it on Dr. Hamblen's authority to give us a certain preparation—and I consider Dr. Hamblen an authority. He, and Pratt, and Allen, and Doisy are doing more work than anybody else on this topic, but the trouble is the people in authority at the present time cannot give us anything specific, and that is what we are looking for. We are impatient. We want them to tell us to give something for this, or that, and what results to expect. What it comes down to is that we hope Dr. Hamblen will keep on working, for honor and glory, and after he has it worked out we hope to give the treatments for cash. (Laughter and applause)

Dr. A. D. Gregg (Liberty): I have no information to give you, but I want to thank Dr. Hamblen for his paper. I am just one of the general, common practitioners. I don't know very much about the scientific side of this or the theoretical side, but I am busy with the practical application of it. I have tried to do some of these things they have been talking about, and I find that the more I study the question of endocrinology, and menstruation, and amenorrhea, the more of a Chinese puzzle it becomes to me. Sometimes I take clinical evidence on a case, and I think I have a clear case in which to use a certain endocrine preparation on a future occasion. Later I try it, and while I may have brilliant success on one patient, it is a failure on the next. Just when I think I have smooth sailing the next case that comes along upsets all my calculations, and I can get no results

whatever with the same method of treatment, although from the previous case it seemed to be the indicated procedure.

I am glad that Dr. Hamblen said, after all his research and study, amenorrhea is consistent with good health. I have been trying to teach that in my practice, but I find it mighty hard to have the average layman understand that a girl is healthy if she is over fifteen or sixteen and is not menstruating.

I believe, from the study I have made, which is just reading what these scientific men, as Dr. Hamblen, have worked out—of course the detail man who comes around has a different story to tell. It seems that the whole thing has developed among the companies as a selling contest. The chief clinical laboratories that are producing these substances put on a contest of salesmanship among the general practitioners.

I just wanted to thank Dr. Hamblen for the light he has given us on this, and speaking now in behalf of the general practitioner I think a lot of us are trying these things with varied successes. I suppose it is a similar situation to baby feeding; if the same formula would nourish all babies, we could all be pediatricians with some success.

As Dr. Hamblen spoke of amenorrhea not inconsistent with pregnancy, it just brings to my mind an instance of a young lady, a friend of my family and myself. She was married at the age of twenty-three years. She was perfectly normal and healthy as far as I, her physician, ever heard or could detect, and she had a scant menstruation at intervals of four to six months during the year. When she got married I thought to myself, here is one young lady who won't have to worry about birth control. She gave birth to three normal, healthy children during the first five years of her married life.

I thank you! (Applause)

Dr. Robert A. Ross (Durham): It has been my pleasure to observe Dr. Hamblen in his work, and to participate in some small degree in it. The thing that confronted him and confronted all of us is just what effect these glands have on individuals. You read results in terms of rat units, and mice units, and rabbits, and all the rest of it, but we are concerned with what this product is supposed to do in human beings. What is to be the histologic result we may expect from its use. When the anterior lobe hormones are placed into a woman's circulation, what can we expect to happen in that ovary? Do we get such things as we get in animals? Does it cause destruction of the ovary? Are we doing the patient harm?

Negative information in regard to that is equally as important as positive information. Dr. Hamblen did not report the fact that he is now studying 2500 human ovaries in which anywhere from 1000 to 8000 rat units were given to these women over a period of time. His conclusions from that study will be published in a later paper, and it is for him to give his conclusion, and not for me to do it, but at all odds we should take evidence such as this before we use these things indiscriminately.

Another thing which Dr. Hamblen was not able to show was that in no instance so far as hyperplasia is concerned has he been able to change the interval or the pre-menstrual endometrium into the secretory phase. He feels and all of us feel that the day of the curettage is not passed. If you have exhausted all the means you have on hand, you get more effect by a curet. It is a necessary procedure anyway because you must know the type of endometrium you are dealing with before you can prescribe the proper things.

In his statement, it occurs to me from merely listening to it, some of you may have misunderstood or misinterpreted Dr. Hamblen's definite and positive ideas in regard to X-ray. He said that the only agent which you can count on for partial results is the X-ray and radium. However, that does not mean in his mind that you have the indiscriminate use of those things. If you have ever treated a surgical castration and X-ray castration you know the difference between those individuals.

Dr. Allen's remark in regard to the use of these things particularly as a temporary procedure I think is worth while. I think in certain instances in women with low blood pressure undoubtedly with the use of theelin you get a very good effect.

Another thing in regard to endocrine products by mouth, it has been my experience you have never been able to recover any of these hormones in the blood or urine, when they are given by mouth, with the exception of the thyroid. With that information at hand we send them to the internal medicine man. The hygienic treatment which Dr. Hamblen has mentioned, the use of the thyroid, the use of the curettage, the use of X-ray, remembering that the younger the tissue is the more sensitive it is to X-ray—the X-ray treatment of a girl sixteen years of age is far different from the treatment of a woman thirty or forty years of age—these things must be kept in mind. It is much better to err on the side of safety than on the side of danger.

The use of the theelin over the pituitary, we have not been able to ascertain its effect. We don't know whether it is a true stimulating dose or not. We can't say whether we knock anything out. It may be an inhibitory sort of thing. With these thoughts in mind I think this paper is very timely in that it gives us negative information as well as positive information. (Applause)

Dr. E. W. Franklin, Jr. (Charlotte): There is one thing that Dr. Johnson mentioned, and that was in regard to the treatment of gonorrheal vaginitis with theelin in children. I was wondering what was going to happen to those children if the ovaries were stimulated as is supposed to be the mechanism, causing an adult type of epithelium in the vagina to combat the gonorrhea. What is going to be the outcome in those children later on? That is a new work, and I have wondered about that.

Dr. R. T. Ferguson (Charlotte): We look to men who have laboratory facilities and the means to carry on these diagnostic procedures to give us the information we desire.

I would like to state that the main thing in the first interview with these patients with amenorrhea is to impress upon them the fact that because they don't menstruate that has nothing to do with their general condition. Many patients with amenorrhea are absolutely well and perfectly healthy, which of course does not mean that they have no cause for complaint, for it is not normal.

I would like to state also in giving these endocrine preparations, some of them will always produce menstruation in some people; others will have no effect whatever. In my experience iron given intravenously, particularly in young women, has given me better results than any other preparation. I administered iron last month to a girl of twenty-two or twenty-three years of age, who had not menstruated for eighteen months prior thereto. She was in perfect health. After two doses she began to menstruate normally.

Also in giving these ovarian preparations, or any of these extracts, your results are multiplied by giving them hypodermically, not intravenously. When they are given intravenously, they are excreted by the kidneys almost immediately and you get no results. Give it to them hypodermically. As the doctor has said you get practically no result by mouth except with the thyroid extract; it is just like giving water.

Dr. C. W. Durham (Greensboro): I would like to ask the preceding speaker how often he gives that iron and how long he extends that treatment.

Dr. R. T. Ferguson (Charlotte): My rule is to give it once a week, giving six doses in all—always intravenously.

Chairman Ransom: What preparations?

Dr. Ferguson: I have used Loeser's for many years with excellent results. I am now using other preparations, some from Parke Davis, Lilly, and others, but I think they all give practically the same results. However, having used the Loeser's for ten years, and having gotten excellent results from its use, I am inclined to continue with it.

Dr. A. S. Oliver (Raleigh): I want to thank Dr. Hamblen for his paper and for his investigative work. I don't believe, however, that the thing is quite as dark, therapeutically, as it has been pictured. Much progress has been made in an understanding of the physiology of the reproductive system. Many things, as he has pointed out, are yet to be learned. We do know now that the follicle hormone is present throughout the menstrual cycle with the exception of the pre-menstrual period of two, or three, or four days, and it is probable that the withdrawal of the follicle hormone is responsible for the beginning of menstruation. The corpus luteum hormone progestin, the function of which supposedly was to inhibit follicle activity—that is what we used to believe that it inhibited follicle development—and veterinarians first pointed out that persistent corpus lutein cysts prevent conception in cows. We now know that its

chief function, perhaps, is to so stimulate and prepare the endometrium so that it will accept and allow the implantation of a fertilized ovum.

Anterior-pituitary sex hormones, so-called, (as he said very aptly, it has not been proven that the pregnancy hormone is identical with the anterior-pituitary sex hormones prolin A and prolin B, and the dangers of its use have not been determined). Future study probably will finally determine what the dangers of its uses are, but there are cases in young people of constant menstruation for two or three weeks out of each month, and the patient has to stay in bed, if the pregnancy hormone, antuitrin-S, is given as Novack says to give it—and Novack has done more clinical work with the anterior-pituitary-like pregnancy hormone than anybody else, I suppose—give six doses in the last two weeks of the menstrual cycle for two or three months, and then stop, you may get results. This corpus luteum extract or preparation from the whole corpus luteum, in ampoules, as put up by Hanson-Westcott-Dunning, will reduce elevated blood pressure of the menopause in the majority of cases, beautifully. I don't know how it does it, nobody else knows how it does it or why, but it will.

For primary amenorrhea I suppose the only hope is the stimulation with mild X-ray of the pituitary, perhaps of the ovaries, although I have seen a few patients already who were supposedly—I don't mean in Raleigh; I don't know if anybody has done any of it in Raleigh, at the large clinics—getting stimulation of the ovaries, and they became sterilized, young girls too. I am just telling you that because it is being done, and in the best of families too, so it has to be carefully administered.

I feel that the chief hope for the benefit of the application of this knowledge lies in you gentlemen in your clinical application and close observation. The physiologist has taught us much, but the clinician is just as necessary an adjunct in this development of our knowledge of the reproductive cycle and how to manage it, as the physiologist. I want to appeal to you to go back home and study what Dr. Hamblen and Dr. Novack, and Dr. Roy, who are working in their physiological laboratories on this problem, have to offer, and then make your clinical application and observations and come back here, and get up here and talk to us about your results. (Applause)

Dr. Sylvia Allen (Charlotte): I rejoice in the truthfulness of Dr. Hamblen's work. The thing I want to say to him is two-fold: First, I have seen an hysterectomy cure hysteria; second, I have seen an hysterectomy cause hysteria. Haven't you?

I was terribly glad to hear him say, after this tremendous volume of work he has done, that he never can find any one single gland at fault. I have never been able to put my finger on any one gland, and I am convinced, as I go along, that the thing is a multi-glandular process. I think the work of Emil Novack of Baltimore has directed attention to the pituitary gland as the key gland, and the speaker who has spoken before me has mentioned the anterior lobe products. There is one other thing,

however, that I think those of us working in the neuro-psychiatric field should emphasize. You don't realize the amount of therapeutic efficacy you can get from the suggestion of the use of these glandular products, and I will have to admit I have been using them, where they do no harm; e.g., I will start them on a series of antuitrins, just to give myself the advantage of those periods. It is far more effective to give them a shot of something when they come in than to give them a tablet to take by mouth. Especially is this so, when the shot costs more than just sterile water. They appreciate a shot of something that costs money. (Applause)

TRICHOMONAS VAGINALIS VAGINITIS

By Dr. A. T. Smith, Durham, N. C.

There has been voluminous literature on the subject of trichomonas vaginalis in the past ten years, and, as yet, there is no uniformity of opinion as to whether the trichomonas vaginalis is the specific cause of the clinical syndrome known as trichomonas vaginalis vaginitis. Some authors are of the opinion that this organism is not pathogenic per se, but is a parasite which changes the environment of the vagina, creating conditions favoring the multiplication of pathogenic bacteria. Some observers claim that trichomonas vaginitis increases the morbidity of the puerperium. Others have not found the puerperium influenced by it.

The disease has been found in patients of all ages, in children, virgins, pregnant women, and women past the menopause. There have not been many cases reported in children, but it is possible that many cases of vulvo-vaginitis diagnosed gonoccal in the absence of positive smears may have been of this nature. Some doctors find this type of vaginitis more frequently in private patients and others find the greatest number in clinic cases.

Practically nothing is known about the mode of transmission of this organism, and there is insufficient evidence to conclude that it is transmitted directly from person to person. In spite of the fact that trichomonas vaginitis occurs so frequently in married women, there have been very few cases reported in which the organism was found in the male. In a little more than 32,000 examinations of prostatic secretion, Stuhler, at Mayo clinic, reported the presence of trichomonas vaginalis in sixteen cases. On the other hand examination of leucorrheal discharge was positive for trichomonas vaginalis in 75% of cases. Dr. Frankenthal reported three cases of trichomonas vaginitis in one family, a mother, and two daughters, ages 10 years 11 months, and 14 years 7 months. In most instances there is only one case in a family—at least only one in a family who seeks medical aid. The rectum has received much consideration as a possible source of infection, but the trichomonas vaginalis has not been found in the rectum, and the trichomonas hominis, native to the intestinal tract, seems an entirely different species. After a patient has had an attack of

trichomonas vaginitis, the bladder often becomes infected and serves as a source of re-infection.

The trichomonas vaginalis is a pear-shaped, oval or rounded flagellate, with an oval or spindle-shaped mucleus close to the anterior end from which arise four flagella. An undulating membrane arises from the anterior end and extends backward about half the length of the body. An axostyle extends from the posterior end of the body. The organism varies a great deal in size, some are about the size of an epithelial cell, and others are little larger than a pus cell. The latter type is the most difficult to distinguish, but all forms are easily recognized by their motility and particularly by a characteristic oscillating or darting movement. After motility ceases it is almost impossible to diagnose the organism in unstained preparations.

Slides may be stained satisfactorily by the Schaudinn's fixative iron haematoxylin method. An easier method of staining is as follows:

Smears are made thin, fixed in the air, the slides are covered with 20 to 25 drops of carbol fuchsin stain, 20 drops of distilled water are added and allowed to stand for five minutes. The slides are then washed with distilled water and dried between filter paper or blotting paper. With this method much of the debris of the smear is washed off and beautifully stained trichomonas with their flagella are seen.

Doctors Ewing and LeMoine found that the percentage of positive diagnoses was much higher with carbol fuchsin stained slides, than in hanging drop preparations. Positive findings in hanging drops were shown in only 63 per cent of the cases with positive smears.

The living organism may be stained in a hanging drop preparation by adding a small drop of 1-1000 aqueous solution of neutral red to a hanging drop of the discharge. The neutral red will stain the granules and emphasize the cytoplasm, flagella and undulating membrane.

The activity of the anterior flagella in whipping in food particles and bacteria apparently toward the undulating membrane and posterior flagella was observed by Dr. Stein. Ameboid activity is frequently noted particularly when the trichomonas are attempting to pass some obstruction. They attach themselves to bits of debris and cells by the axostyle. And from this anchorage they rotate and even change shape rapidly. When motility ceases the organisms become round in shape.

Satisfactory media containing glucose and blood have been developed for the culture of these organisms. Cultures also grow well when either blood agar or placenta agar slants are used as a basis, but apparently more luxuriantly on the placenta agar slants. They grow equally well under aerobic and anaerobic conditions.

In an effort to explain the apparent aggravation of symptoms in trichomonas vaginalis vaginitis following the menstrual period, Stein studied a series of comparative cultures. "Simultaneously, subplants were made in which placenta agar slants were used as a base. Locke's solution with 5% fresh human blood serum was added to one group. Locke's solu-

tion with 5% fresh human blood serum and 4% progynon (female sex hormone) was added to the second and Locke's solution plus 4% progynon to the third. Tubes from each of the three groups were inoculated with equal amounts of the same actively growing culture of trichomonas vaginalis. At the end of twenty-four and forty-eight hours incubation at 37°C. comparisons were made by calculating the number of trichomonas per average high power field. It was observed that the addition of progynon without blood serum greatly stimulated the growth of the parasite. The addition of the progynon with the serum also stimulated it, but to a lesser degree. The third group in which Locke's solution plus serum was used served as a control group. It would seem from this experiment that the sex hormone of menstrual blood may be a more important factor in causing the postmenstrual flare of trichomonas vaginalis vaginitis than the presence of blood serum."

Some women harbor the trichomonas vaginalis without any signs of a vaginitis being present. The author saw three women who had an occasional trichomonas in the vaginal secretion, but no signs of a vaginitis. Within a month's time two of these women had an acute trichomonas vaginitis. The symptoms which usually bring the patient with a trichomonas vaginitis to the physician are a more or less profuse vaginal discharge with often an offensive and rather pungent odor, an intense puritus and in severe cases a dermatitis of the external genitals. The discharge is quite characteristic, and after a number of cases have been seen it is possible to make a diagnosis of the acute form even before the hanging drop is examined. The discharge is thin, purulent, pale yellowish green or greyish green, with many fine bubbles in it, and is strongly acid to litmus paper. In most cases the discharge is distinctly more profuse after a menstrual period, and the itching is more marked. At times the itching is so severe as to interfere with the patient's sleep. Burning on urination from the acid urine coming in contact with the inflamed surfaces is rather frequent. In fact, many of these patients consult their physician for "bladder trouble." Dyspareunia is also frequently complained of. The duration of symptoms varies from a few days to a few years and some patients will give a history of treatments, varying from simple douches to a pan hysterectomy, often without relief of symptoms. Many of these cases have been diagnosed chronic gonorrhea even though the frequent cervical smears were negative. "As a result of both the obstinancy of the condition and the ineffectiveness of the treatments, many of the patients are often depressed and neurasthenic."

On examination the vestibule may show a moderate degree of redness and be bathed with a scanty yellowish green foamy discharge. The vagina is moderately reddened and there is a small collection of the typical discharge in the posterior fornix of the vagina. In more severe cases the inner surfaces of the labia minora and the vestibule show small circumscribed areas of dark red which do not bleed except in very severe cases,

but are very sensitive to touch. In a few cases condylomata are present around the introitus and scattered over the perineum.

When a vaginal speculum is introduced one notices a somewhat granular condition of the vaginal mucosa which is bathed with pus, and frequently bleeds a little when swabbed. The mucous membrane of the cervix shows patchy areas of redness which give it a strawberry appearance and which bleed when the discharge is wiped away. Unless there is associated pathology in the cervix it will be noted that the discharge from the cervix is the normal clear mucous discharge. The trichomonas apparently does not invade the cervical canal. The purulent discharge tends to collect in a pool in the posterior fornix of the vagina, and some of it may be left during the treatment if the blades of the speculum are not carefully turned so that all parts of the vagina can be treated. The material for the hanging drop should be obtained from this site for in it the organisms are more numerous and more actively motile.

Diagnosis of trichomonas vaginitis is made on the clinical findings and a microscopic examination of the discharge in a hanging drop preparation. The material for examination should be obtained before a pelvic examination is made for frequently the glycerine in the lubricant used on the gloves is sufficient to stop the flagellates from moving and it is almost impossible to diagnose the non-motile organism in an unstained preparation. The patient should have had no treatment nor even a plain water douche for at least twenty-four hours before the examination.

The material can be obtained from the posterior fornix by a platinium loop, a cotton swab, or even on the posterior blade of the speculum. Some of the material is added to warm normal salt solution immediately and then a drop of the solution is placed on a hanging drop slide and examined under the high power of the microscope.

A few drops of the discharge may be placed directly on the warmed slide and an equal volume of warm saline solution added.

There have been many methods of treatment devised, and many of them have been fairly successful in the hands of the men who originated them. As yet, there is no specific cure for this type of vaginitis. It is fairly easy to clear up for a short time, but recurrences are all too common. The time honored method of treatment usually consists of a mechanical cleansing of the vagina with Tr. of green soap, painting the vagina with some antiseptic and usually some type of tampon or gauze pack impregnated with an antiseptic is placed in the vagina to be removed in twenty-four hours. It is important that all vaginal folds are smoothed out and every part of the vagina cleansed and treated. The treatments may be carried out during the menstrual period, and the patient is usually instructed to take douches, preferably 0.5 per cent lactic acid douches between treatments. Treatments are continued until the patient has a negative hanging drop following two successive menstrual periods. A patient is not considered cured until she has had a negative hanging drop in the absence of all treatment, even douches, for six months.

There have been a number of departures from this basic form of treatment with varying degrees of success. Gelhorn of St. Louis has gotten very good results from insufflating the vagina thoroughly every second or third day with one dram of acetarsone, a light white powder which contains 12.5 per cent of acetarsone in equal parts of kaolin and sodium bicarbonate. No douches are allowed and six treatments are often sufficient.

Goodall has treated 64 cases with picric acid. In all cases except one there was a rapid and apparently permanent cure. All symptoms disappeared in from three to six days. The one case who did not respond to treatment was intolerant to picric acid. He has his patients insert a vaginal cone of 1 per cent picric acid high up in the vault on retiring. The blunt end should be introduced first. A lactic acid douche (lactic acid dram 1 to the quart) is taken in the mornings. The average course of treatments is from five to ten days. They may be carried out during the menstruation and also during pregnancy, except perhaps during the last month. Patients with secondary infection of the bladder with trichomonas vaginalis were treated with bladder instillations of 1 per cent picric acid.

Cummings has used neosalvarsan very successfully in 30 out of 32 patients. The two patients who did not respond took treatment very irregularly. His routine is as follows: The external genitals and anal region are cleansed with a Tr. of green soap. A vaginal speculum is inserted and the discharge carefully wiped out with cotton pledgets. No attempt is made to scrub the vagina. The vagina is then filled with neosalvarsan ointment (0.3 gms. to 2 ounces of ointment) and a small tampon is inserted to keep it in. The tampon is removed in 24 hours and a 0.5 per cent lactic acid douche is taken by the patient. Each night, except when the tampon is in, the patient injects one or two ounces of a 1-2000 neosalvarsan solution into the vagina, using a small ear syringe. Each morning the patient takes a lactic acid douche. The office treatments are given twice a week for one month, and the 1-2000 neosalvarsan solution is used for one month after the office treatments have stopped. The treatment is discontinued after two months, but the patient is examined from time to time for trichomonas.

Quinine insufflation of the vagina has been used by some with very good results, but the number of cases reported is small.

Kleegman has obtained very good results from scrubbing the vagina thoroughly with Tr. green soap, drying it, bathing it with full strength pyroligneous acid, and then packing it with lamb's wool tampons well coated with Lassar's paste (national formulary). The tampons are kept in until the patient returns for her next treatment.

Until the rectum is definitely ruled out as a source of infection, it is well to instruct the patients in the matter of anal hygiene. Many of these patients are below par physically, if not at the onset of the infection, certainly by the time they have had it for a month or two. Therefore it is a good thing to put them on a high vitamin diet and cod liver oil. It is well to warn the patients at the onset that the condition may be slow to

clear up and that recurrences are frequent, and to impress upon them the importance of having periodic examinations even after they are apparently cured.

DISCUSSION

CHAIRMAN RANSON: Dr. Smith's paper is open for discussion. This is a disease that we are all confronted with in general practice, and it is quite a live subject so we should all be interested in it.

DR. R. T. FERGUSON (Charlotte): I want to thank Dr. Smith for her paper. That is really a stereotyped expression, but we all appreciated it.

I want to make a statement that will be criticized by many, and not believed by many. I want to say that I don't believe that trichomonas vaginalis vaginitis amounts in itself to anything. I think what has been written and what has been said about this subject is largely hooey. I think you will find that the trichomonas vaginalis vaginitis in a good many cases is due to a gonorrheal infection; it is plain leukorrhea in others.

In treating these cases of leukorrhea, the first thing you have to do is to send your specimen to the laboratory to discover what you have, and you will find you have either a gonococcus, a staphylococcus, streptococcus, or a colon bacillus. If you treat and get rid of these germs, you are going to get rid of your leukorrhea.

The first thing I tell my patients is to throw away the douches. They are not worth a cent. You will never cure any patient by giving them douches. Many years ago at the Mayo clinic, I heard Dr. Will Mayo say that if you take the douches away from women, you can cure many a one. I have cured a number of women in this manner, always making cultures and smears first to see if any infection is present. Have them come back in ten days, after using some antiseptic and astringent local application, and they will tell you that they have not needed a douche.

This is a subject of a great deal of importance. There are more women troubled with leukorrhea than any one thing in the world, and nobody knows it better than the gynecologist. I have enjoyed Dr. Smith's paper. It is a stereotyped paper on the subject, and after you have done all that she says and more, in most cases the trichomonas will still be present. Have the patient in every other day, tell them to throw away their douches, and you are on the right road. There are a number of local applications which are effective. Continue to treat them persistently. Say to them at the start, "I can't cure you in a month or two months. It may take six months or a year." If you do that, you will cure every one of them. The worst cases you have are those that have had vaginal hysterectomies with an old vaginal secretion—that is terrible. You see them where they get sore for several inches down on the thighs from the great gush of yellow fluid that comes out, and it scalds the skin like lye. They have been treated by many doctors usually, and you can keep on treating them without any results. I have resorted to the use of radium in these cases with wonderful results. It is about the only thing I know in such

cases where they have had a complete hysterectomy, and continue to have this terrible vaginal discharge, and where they ooze probably a pint of this yellow fluid during twenty-four hours, that will give results.

Dr. Louise M. Ingersoll (Asheville): Dr. Smith has covered the subject so thoroughly that there is really nothing left for me to say except to emphasize one or two important things which in my experience have been very helpful: The thorough cleansing of the whole vulvar region before introducing any instrument into the vagina, then the thorough cleansing of the vagina with green soap, not very strong, picric acid, or a mild silver, something of that kind, or hexylresorcinol, but the cleansing is the thing I put more dependence on.

I am glad to hear Dr. Smith emphasize the general condition of the patient because I find often a rundown condition, and that an improper diet corrected will help this very much. (Applause)

Dr. J. E. Ashcraft (Fayetteville): My experience in treating patients with trichomonas vaginalis vaginitis is not very extensive, but I agree with the ladies that perhaps cleanliness is next to godliness. (Laughter) I do think the habit of using douches has been abused, and perhaps some of the cases overtreat themselves. The cases of leukorrhea that I have had have been very obstinate and difficult to cure, and when I have thought they were cured they have recurred, so I am not sure just what procedure I would follow to cure these cases, but I do believe that over-douching is injurious.

Dr. J. T. Hoggard (Wilmington): I had not intended to discuss this paper. I wish I could discard the subject as easily as Dr. Ferguson. I have a great many of those cases, and the patients complain very seriously, and you have got to do something for them. They demand help.

Recently I have adopted the plan suggested by one of my associates of having them in the knee-chest position when I treat the vagina, and we cleanse them very thoroughly—I haven't used green soap—with boric acid solution, and have used this caroid as a digestive for the mucous in the vagina. We have resorted to different strengths of nitrate of silver, and have gotten up as high as 10 per cent. We have used the violet ray with success. I have a vaginal applicator. After drying them very thoroughly, we expose them to the violet ray, which also dries them thoroughly, which I understand is the most detrimental thing to this organism. Thus we secure absolute dryness, which is suggested in the treatment by various antiseptic powders in the past. I have found this a very unsatisfactory condition, and most patients really suffer. I have frequently told them that too frequent douches, especially douches that are irritating, will prolong their condition, because I think it increases the vaginitis; but I don't see any objection with that profuse discharge in the vagina to using less irritating douches, particularly where it has that irritating effect described in the paper. When frequent bland irrigations or douches are given to relieve that profuse discharge, I can see no harm in it.

I cannot see how possibly, by allowing that irritating discharge to remain there, they can cure themselves, when some people become so terribly irritated by it. I don't see how any bland washing or irrigating of that part could increase or prolong the disease. I have warned them against any irritating douches, anything that I thought would irritate and keep up an inflamed or irritated condition there, but I do advise very frequent douches, and I make them balloon the vagina by compression of the vulva about the douche.

It is a very troublesome thing for many, and I wish I could feel like Dr. Ferguson that it will cure itself. It would be a great consolation.

CHAIRMAN RANSON: Our next paper is by Dr. Robert A. White, of Asheville, whose subject is "Premature Interruption of Gestation."

DR. ROBERT A. WHITE (Asheville): Gentlemen, after all these ultra-scientific papers a country doctor like I am feels glad to see some other common doctors here. This elaborate subject, "Premature Interruption of Gestation," is simply abortions. (Laughter)

PREMATURE INTERRUPTION OF GESTATION

By DR. ROBERT A. WHITE, Asheville

I can find very few papers written upon the subject of abortion. It is, in its various forms, the most common and the most serious complication of pregnancy. There seems to be no unified methods of dealing with abortions—many of the methods in common use seem far too radical. The purpose of this short paper is to discuss certain of its phases, and to plead for more conservative treatment.

The term "abortion" in this paper shall apply to the expulsion of the ovum before the seventh month of gestation. After the seventh month, the term "premature labor" should be used.

There is no correct way of determining the frequentcy with which abortions occur. Many very early ones are symptomless, and a great many more are not seen by a physician, or if so, not reported. It is, however, given by the authorities that a conservative estimate is twenty per cent of all pregnancies. Nearly all fertile married women have had one or more abortions. It is further estimated that twenty-five per cent of all abortions are criminal in origin.

It is claimed that in Germany each year there are between 500,000 and 850,000 abortions. In the modern United States, there are probably fully as many per capita. In Soviet Russia the artificial termination of pregnancy is legal. State abortoriums are maintained, and "when a woman desires to have her pregnancy terminated she applies to a commission made up of an accredited physician, a member of the Commission on Mothers and Infants and a member of the Women's Commission. It is found that the candidates average 4 to 5 children before applying for assistance. Since the establishment of this policy the government has

granted the request of 81 per cent of the women for a free operation to be performed in an authorized government hospital. During the years 1922, 1923, and 1924, 55,320 authorized abortions were performed in the hospitals with no reported mortality. During the same years, 66,675 unauthorized and illegal abortions were performed with more than 3,000 deaths. At the present time the Soviet Government is making a study of birth control as a simpler method for the sick and debilitated mothers. Therapeutic contraception and abortion are receiving organized investigation so that an authoritative statement of justifiable medical indication can be prepared." (G. Gellhorn, *Am. J. Obst. and Gnec.,* 16:547, Oct. 1928.)

The causes of abortion are too numerous to mention. Bland has roughly grouped them under four headings: (a) paternal, (b) maternal, (c) fetal, (d) placental.

Paternal Causes. Paternal syphilis is no longer looked upon as a cause of *early* fetal death. In the later months, syphilis is still considered the most common cause of fetal death, but is more often of maternal than paternal origin.

Alcoholism leads and other forms of chronic poisoning may affect the virility of the sperm and cause premature interruption of pregnancy.

Maternal Causes of abortion may be classed as (a) general and (b) local.

General. In this group may be included all infectious diseases, acute or chronic, (influenza notably), toxemias, venereal diseases, drug and chemical poisonings, profound fatigue, fright, shock, and nervous emotions. Almost every known drug has been tried by women in attempting to produce an abortion, but none are effective routinely, unless taken in toxic doses.

Local. Traumatism is frequently given as a cause. We believe it is rarely responsible. Endometritis, low implantation of the ovum, lacerated cervices, especially when deep enough to involve the internal os, are most frequent causes. Malformation and pelvic inflammatory diseases are prone to cause sterility, so cannot be given as a frequent cause of abortion. Retro displacements are frequently given as the cause of abortion, but unless the uterus is fixed or becomes encarserated in the pelvis, I do not believe this is a cause. On the contrary, pregnancy will correct this condition invariably by the twelfth week. The so-called "habitual abortion" where there is no demonstrable cause, cannot be explained. Holland says that the frequency with which syphilis causes abortion is "grossly exaggerated."

Fetal. The most common cause of early abortions is fetal malformation or anomalies. Mall estimates that this condition is responsible for thirty-three per cent of all early abortions. The cause of these malformations is not understood any more than is understood the cause for faulty fruits or flowers.

Placental. Among the placental conditions leading to abortion are: obliterative endarteritis of the villi vessels, extensive infarcts, hydatildi-

form mole, premature separation of the placenta, *low implantation of placenta,* and placenta praevia.

Infective or Contagious Abortions. Two other causes of abortion might be mentioned: (a) Bangs bacillus—while a frequent cause of abortion in cattle, has been known to be transmitted to the human pregnant female. (b) Placentitis—probably resulting from an endometritis, has been reported as a cause of early abortion. I have had two such cases.

Pathology. To refresh our memories, a brief review of the pathological changes which take place in abortion may be in order.

In spontaneous abortions the primary lesion is hemorrhage in the decidua. The bleeding is followed by necrosis in the tissues affected, and detachment of the ovum. The detached ovum then acts as a foreign body to incite uterine contraction, and after a varying length of time is expelled. Prior to the sixteenth week, the placenta being poorly developed, the ovum is often expelled in mass. But after the sixteenth week the more mature placenta is more firmly attached, and the amniotic sac larger, the fetus may be expelled first, and the placenta later. After the stage of viability the process is very similar to term labor.

Occasionally, when the process of abortion is greatly prolonged, the blood clot about the ovum coagulates and becomes an organized clot containing the sac filled with clear fluid with or without the fetus. This is known as a carneous or fleshy mole.

Mechanically induced abortions, especially of the criminal type, are usually associated with infection, and as we all know, may lead to serious complications. The extent of the pathological changes being dependent upon the type and virulence of the infection and the amount of traumatism. It may be limited to a simple metritis or it may be extended and become a perimetritis, pelvic cellulitis or pelvic thrombo plelebitis. Further extension may take place involving the tubes and ovaries or a general peritonitis may ensue. If the infection gets into the blood stream we have the grave condition of a general septicemia.

CLASSIFICATIONS

Abortions may be divided etiologically as follows: (a) spontaneous, (b) induced. The induced abortion may be therapeutic or criminal, or it may be divided clinically into: (a) threatened, (b) inevitable, (c) complete, (d) incomplete, (e) missed.

Spontaneous abortions. The causes of this condition have been discussed and the treatment will be gone into later.

Induced abortions. The indications for therapeutic abortions are varied and far from being unified. There is need for modification in this regard. We were all taught that the uterus might be emptied, if the woman's life is in imminent danger, or is being definitely jeopardized by said pregnancy. There are various ramifications and qualifications to this edict, but when boiled down, it is the same rule. The doctors have given

themselves the privilege of meeting together in groups of three to determine whether or not a woman is *physically* able to go through pregnancy. If they decide that she should not, and put in writing their decision, with the reasons for such decision, they may proceed. But woe to "The Three" if their written decision does not conform to "The Rule" laid down by Hippocrates and perpetuated by "the power that be," namely: The American College of Surgeons, The Duke Foundation, or some similar institution or the Hospital Committee. The Hospital Committee is usually composed of three men. They may be eye, ear, nose and throat specialists, chest men, neurologists, orthopedists; in fact, anything but obstetricians and gynecologists. These men meet in executive session to decide whether the reasons for wishing to do a therapeutic abortion are just and true. I do not wish to change "this rule" nor to enumerate the indications for therapeutic abortion, but to plead for a committee, composed of men who have taken at least one woman through pregnancy and confinement during the past five or ten years.

There are many women who are tuberculous, or who have a cardiac condition or a goitre, or even Bright's disease, who can be taken more safely through pregnancy than some who have none of these classical conditions. For example, the pale, anemic, hard working mother of three babies one year apart, who cannot have domestic help, and cannot possibly get the proper food, rest or sleep. There are others who even though they can have these things are not physically or mentally fit for motherhood. I firmly believe there are many women aborted who need not be, and by the same token, many are refused the relief who should have it. It is a question to be settled upon the merits of the individual case with many factors to be considered—mental, economic, domestic—as well as purely physical.

The method of producing a therapeutic abortion need not be gone into except to call attention to a more recent technique which is coming into prominence and which I think will be of great value, especially in the tuberculosis cases and heart cases who are poor anesthetic risks. This is deep X-ray therapy. I hope our X-ray men will discuss this procedure.

Criminal abortions. Every community has at times to deal with illegal abortions, even Soviet Russia, where abortions are legalized. Our community seems to be no exception. Since this group of men cannot regulate this practice, there remains for us the humanitarian act of cleaning up the mess. The treatment of this condition will be discussed under the general heading.

Clinically, abortions may be classed as (a) threatened, (b) inevitable, (c) complete, (d) incomplete, (e) missed.

Threatened abortion is defined as a condition where there is some hope of a favorable reaction to treatment; an inevitable abortion as a condition where there is no hope of favorable response. Since there is no sharp line of demarkation, I shall discuss these two conditions together. Where a woman has missed one or more regular menstrual periods, and then has

a return of vaginal bleeding, however scanty or intermittent she should be suspected of a threatened abortion. Thousands of abortions could be prevented if the patients were put to bed at the first sign of blood, twenty-four hours a day and kept there for three days. The typical picture though is after the bleeding has gone on for a week or more, and she is expelling some clots and having low pelvic pain she goes to the doctor's office, after a morning's shopping tour. The doctor too often rushes her to a hospital and an emergency curettage is done. Two big mistakes are thus made. The patient should have stayed in bed and called the doctor and he should not necessarily have curretted. The only excuse that I can see for an emergency currettage in these cases is uncontrollable hemorrhage—and let it be remembered that the patient's word cannot be relied upon as to the amount of bleeding. Bleeding is not a hemorrhage until the patient is losing at least one ounce of blood per hour or until she has lost 500 c.c. or more, and a little blood on the sheet or clothing looks like a lot. Only too often the bleeding with pain and the expulsion of clots is taken as evidence of inevitable abortion. It is not, and in the absence of profuse hemorrhage, there is no hurry to operate. Put the patient to bed with ice over the fundus and wait. Many of these patients will surprise us by responding to this treatment and going on beautifully to term. When bleeding, pain and the passage of clots has continued for from one to several days, vaginal examination may reveal the cervic dilated one or two fingers. This sign, we are taught, means inevitable abortion, but I have had more than one patient with all these symptoms respond to treatment and experience a complete arrest, go to term, and deliver a normal, healthy baby.

In these cases of threatened abortion, when the expectant treatment is being used, the escaping of amnionic fluid, or the passage of a dark brown, or coffee ground discharge with a fetid odor, there is no object in further waiting. Surgical treatment may then be justifiable.

Complete abortion is simply the expulsion of the entire ovum. This condition needs no surgical intervention, and would be relatively much oftener seen if the expectant treatment outlined above were more generally used.

Incomplete abortion is a condition where only a part of the ovum, (the fetus or a part of the placenta) is expelled. This is far more frequently seen after the sixteenth week than before and usually requires some form of surgical procedure. Continued bleeding or pain or both after the mass is expelled usually means that there is some retention of tissue.

Missed abortions may be described as a condition in which all the symptoms of an early abortion arise, then subside without the expulsion of the ovum. In this condition the following may happen. The detached ovum may remain in utero for months to be finally expelled in the form of a carneous or blood mole or a macarated fetus and placenta. The ovum may be in the state of mumification or even calcification, the last state however is usually seen in ruptured tubal pregnancies.

Treatment. Prophylactic treatment is of first importance and should begin before conception takes place and continued through the first ten weeks of pregnancy. It should consist of the correction of all local and systemic ailments which might interfere with pregnancy, the maintenance of normal and healthful standards of living, and the early recognition and prevention of complications. Unfortunately we seldom see these patients until the greatest danger period is over.

Medical. The medical treatment of threatened abortion, as mentioned before, is first and foremost, *rest in bed*, from the first suggestive symptom. Sedatives may be added if needed, such as bromide, or the barbaturic preparations, or if need be an opiate, in the form of paregoric, codiene, or morphine. Ice bags seem to help in some cases. Occasionally, under this regime the symptoms will abate for a few days, only to return more severe than ever and end in a rapid expulsion of the entire ovum. In others, the bleeding will return at short intervals, and in small amounts, and continue for days or weeks, to end finally in abortion. These cases are very discouraging, and it is a question how long to wait before surgical intervention. There is certainly no harm done in waiting one or two weeks. If symptoms do not abate, or if they grow worse, it may be wise to get the patient out of bed for a few days in the hope that she may spontaneously empty the uterus.

If the bleeding continues, with some odor or disorganized blood, and the uterus shows no increase in size, the fetus is most surely dead, and there is no need for further waiting.

Inevitable abortions. When this condition is recognized, by the signs mentioned above, namely: increasing bleeding with escape of amniotic fluid, the cervix bulging or distended (Tarnier's sign) or the cervical canal dilated and a part of the ovum protrudes, the vaginal vault should be packed with gauze, not a small strip but yards of it—enough to fill the pelvis. To do this, a bivalve speculum is needed, and this should be carefully removed to avoid disturbing the pack. After twenty-four to forty-eight hours this tampon is removed and the entire ovum follows, or it may be partially in the cervix and partially in the vagina and can be easily removed with the finger or expressed from above.

Surgical. Sometimes (Jeff Miller says never) the ovum fails to follow the tampon, and cannot be expressed, then we are dealing with a condition of incomplete abortion, which requires surgery. *If the patient has no fever* —please note—it is safe to proceed under anesthesia to remove with the finger, or spongestick, placenta forceps or a dull spoon curette, the remaining tissue, then pack the uterine cavity with iodoform gauze for twenty-four hours. If there is sepsis, it seems far safer to postpone operation for a few days. Stand the patient up on blocks, ten or twelve inches, with ice bags to fundus and force fluids until the infection has had time to subside or localize.

Treatment of septic abortions. This is the bane of obstetric and gynecologic practice. It is usually a clean-up job, one that none of us want.

It is still a somewhat mooted question, but the majority of authorities in this country agree upon the following plan.

Curettment tends to increase the morbidity and mortality. When the cervix is widely dilated and the septic mass is accessible it may be removed with the finger or a sponge holder or ovum forceps but this must be done with the greatest care, and under no circumstances should the uterine cavity be curetted, or irrigated, for it is claimed this will break down the natural barrier, the walled-off sinuses and favor extension of the infection.

If there is abscess formation with bulging of the pouch of Douglas, a posterior vaginal incision should be made, and drainage instituted.

Inflammatory masses about the adnexa which do not respond to conservative treatment may require radical surgical procedure, but this is rarely the case. When there is extensive peritonitis, surgery is seldom advised or practiced.

In the cases of general septicemia following abortion, the plan is the same as in puerperal sepsis, or any other form of septicemia. General supportive treatment, and prayer. Blood transfusion frequently and in small amounts may do a little good. But there seems to be no proof that any form of therapy, vaccinal, non-specific protein, serologic, or intravenous which will change the fatal course of this, one of the most perilous processes arising in the human body.

DISCUSSION

Dr. Robert A. Ross (Durham): I am always glad to enter into the discussion of a paper on this subject, particularly one that has been handled in such a nice manner as this one has.

At one time we had opportunity in Philadelphia of observing 500 women with septic abortions: 250 of whom were placed in upright Murphy position, and were given nothing for five days. At the end of that time if they were still bleeding, the uterus was emptied. The other 250 were treated immediately upon entry to the hospital by evacuation of the uterus. Out of the crowd that were treated conservatively the uterine cavity was not entered except in the one contingency of excessive bleeding, that is, an effort to save life.

At the end of this study we found that with those patients who had been treated conservatively, and who had the handicap of five days to begin with, the morbidity and mortality and hospital days were all in favor of conservative treatment.

Another factor, which he speaks of, and something which touches on Dr. Tayloe's paper, which I was asked to open the discussion of, concerns a question of the causation. I think undoubtedly that fetal abnormalities are a very frequent cause for these. Our ideas in regard to fetal development are changing from time to time. It is now believed that out of every thousand conceptions seven or eight hundred of these conceptions begin as male embryos, and we find that the mortality is on the side of the male

embryo. We know that to be true. After development has taken place it has to do with the male chromosomes and the developmental abnormalities.

Dr. Tayloe reported a case today of a fetal abnormality. In thinking of these things we must remember that there are single pregnancies and double pregnancies. We must be sure to find out first what they are referring to. We find usually that abnormalities of a single pregnancy have to do with developmental things and usually these abnormalities are in the midline. If we understand the causation of twins, we can possibly understand the causation of such monstrosities as Dr. Tayloe reported, but as yet we do not have any true conception of the causation of twins. Most people are inclined to think it is a development of the last polar body that is thrown off into a septic individual. If we can think in terms of that we can understand these particular types of thing which Dr. Tayloe has mentioned. The problem, as I see it, in these monstrosities is not merely one of academic interest, but difficulties usually present themselves in these cases of delivery.

The reason we have less monstrosities in double pregnancies is simply because we have less twins, one to ninety-nine, and that I think holds good in this case.

It is very unusual to be able to get the result that Dr. Tayloe got in his case: that is, it is very rarely that a double monstrosity will be operated on, with cure.

After receiving the paper that Dr. Tayloe was going to read, I observed the title, "Epigastrius Parasiticus." I didn't know what it meant and I asked Dr. Carter about it. We thought the Tayloes had got the crabs (laughter), but on investigation we found that there was such a thing. In the literature we could find reference only to four or five of these individuals who had been operated on and cured, and each one of them approached very closely the type of thing which Dr. Tayloe had, where the parasite was on to the autosite, and where it was small and had been removed, and there had been no vital connections, only blood vessels and a few nerves. There have been double monsters where they have been hooked on to the sternum or esophagus, and there was little opportunity for relief. So I think it is very noteworthy that Dr. Tayloe has brought us the cure of a double monster by operation, and I believe it is a fine thing to have in our records.

Dr. C. W. Durham (Greensboro): I would like to say that in these cases referred to as bleeding, there are two or three sides for a person to consider. The first, is the patient herself; second, the life of the fetus; and third, the family. Lots of time in treating these cases on the outside the people concerned will insist upon you doing something, or they will get someone else who will. I have had that occasionally happen. I used conservative treatment on a patient, and the next time I heard of the case the patient had been curetted without anybody saying a word to me, and I lost my patient, and her family, by being conservative. It is a

question whether that would happen if the patient got the advice after consultation with three doctors, but that has been my experience.

Another experience I had was with a patient who was nauseated and vomiting lots, and continued to do so for two or three weeks. There were two other patients in the hospital with her at the same time. I told the other doctors that I was going to end the pregnancy in my patient. I did, my patient went home, got pregnant again, and now has a nice living child. One of the other patients got well, and one died. That is a 33 1-3% mortality. I think sometimes when a patient is bleeding and nauseated and not getting along well, it is much better for the patient and everybody concerned if the pregnancy is ended, and let the patient start anew again.

Dr. Eva F. Dodge (Winston-Salem): In the last conference I think they held on abortions in California an interesting thing was brought out in regard to abortions in Russia. It seems that the Russian gynecologists had gotten together to discuss the matter, and one of the members of this conference in California had been present. He said that one of them from Archangel said they were not approving of the legalized abortions due to the fact that previous to the legalizing of them he had been having two or three ruptured ectopics a year and now they had jumped to fifty or sixty, and he felt that the morbidity rate following the legalized abortions had been markedly raised, and that they were trying to put in a system where they would cut out legalized abortions and try to have birth control clinics scattered so thoroughly over Russia that they could control the pregnancies rather than to abort them afterwards.

One thing they were doing, if the woman came with the first pregnancy the Commission refused to abort, but with the second or third they would abort her. If she returned for a second abortion they made her go through with it, but tried to instruct her in birth control measures after that.

Dr. Robert A. White: Dr. Durham, I think you are perfectly right, and much would be solved by this committee composed of men who are actually doing obstetrics, and who would be in sympathy with the condition. Each case should be on its own individual merits. There is no question about that, and my plea is for unification in the methods of handling these things. If everybody uses a similar method or methods that are somewhat alike, the patients won't leave us and go to radical men, they will stay with us. I think if we can get some unification in the method of dealing with these things it would be much better.

The use of the pituitrin I found of particular value in the inevitable abortion where the cervix is dilated. I frequently give it then, and express from above with the first two contractions. One or two pituitary contractions often help greatly in manual expression of the ovum, and might be given in small graduated doses to stimulate contraction.

Dr. Frank A. Sharpe (Greensboro): I believe that last night at one of the meetings I heard that North Carolina was seventh from the bottom in maternal mortality rates, and as all of you know there has within the

past few weeks been inaugurated within this state by the State Board of Health and the North Carolina Medical Society a program to reduce this high maternal mortality, which is largely due to eclampsia. About a third of the deaths in the later months of pregnancy are due to eclampsia, and therefore I hope that this paper that I have prepared, which is very short, may be of some help in carrying out this program that is being inaugurated.

. . . Dr. Sharpe then presented his prepared paper, at the conclusion of which he said:

I realize that there are many methods of treating eclampsia, and by no means do I wish to go on record as saying that this is the only method. I think that the important thing about the treatment of eclampsia is to have some method in your mind fixed so well that when a patient comes under your care with these various dangerous symptoms you may begin at the beginning and know which direction you are going.

I trust that these works of Fay and Arnold may be helpful to you. I have quoted rather literally from the work of these two men, and I thank you very much for your attention.

THE TREATMENT OF ECLAMPSIA

By Frank A. Sharpe, M.D., Greensboro, N. C.

The purpose of this paper is to call to your attention the dehydration method of treating the toxemias of later pregnancy.

The remote cause of eclampsia is still unknown. The immediate cause, however, is now generally believed to be due to a water retention, and fluid imbalance which if allowed to continue, will surely result in convulsions.

Hypertension and albuminuria are now looked upon as results and not causative factors. The general principle of forcing fluids to dilute the poisons in these cases is now believed to be erroneous.

It is hoped that within the near future there will be worked out the physico-chemical and certain endocrine factors influencing this water metabolism, but in the meantime we have recommended by Arnold and Temple Fay a perfectly rational method of preventing and controlling the condition, and it is the work of these two men which I wish to review.

They have shown that there are certain pathologic states regularly present in the brain of patients suffering with eclampsia. The tissues are water-logged. There is widespread cerebral edema, a condition differing little from the "wet brain" found in alcoholic poisoning, status lymphaticas, and acute toxic hydration.

For convenience in discussion, the subject has been divided into three groups, depending upon degrees of severity, or stages of advancement, as:

1. The moderately pre-eclamptic stage.
2. The dangerously threatening pre-eclamptic stage.
3. The eclamptic or actively convulsant stage.

I. MODERATELY PRE-ECLAMPTIC:

Under this group are included patients with definite signs of hypertension, albuminuria, edema of the extremities, headache and beginning visual disturbances. A part or all of these symptoms may be present.

1. The patient is put to bed at home or hospitalized if possible.
2. The total output of urine for 24 hours is measured and charted. The patient is placed on a minimum intake or denied fluids entirely during this period.
3. The total fluid intake (water, tea, milk, fruit juices, coffee or other beverages) is regulated so as not to exceed the amount of urine output for the preceding 24 hour period.
4. As far as possible the level of fluid intake is maintained so as to equal and balance with previous day's output of fluid and the patient's daily weight is observed.
5. Small daily doses of magnesium sulphate are given to help in the dehydration.
6. A liberal and wide variety of solid foods is given, a diet, low in soft. Liquid nourishment, as well as sweets and desserts, being avoided.
7. Food and drink are given at 3-hour intervals throughout the day, no eating or drinking permitted between these meals.

II. THE DANGEROUSLY THREATENING PRE-ECLAMPTIC:

This includes those patients with or without chronic nephritis, suffering with a marked or alarming degree of hypertension, albumin and casts, and external edema, with headache, vomiting, visual disturbances or other cerebral symptoms.

The principles of treatment here are the same as for the group just discussed with more persistent control of fluids and diet, since the response is slower.

1. All fluids and usually all foods are withheld until the 24 hours urine output is known, then the intake slightly below the output is maintained.
2. Dehydration is begun at once by the intravenous administration of 50 cubic centimeters of 50% glucose, repeated in four to six hours if necessary.
3. Saturated magnesium sulphate, one or more doses, is given by mouth until watery stools result. This is repeated daily.
4. If no marked improvement is noted within a few hours, venesection or spinal drainage is done at four to six-hour intervals.
5. A strict balance of fluid and dry solid diet is maintained.

III. THE ACTIVELY ECLAMPTIC, OR CONVULSANT GROUP:

Placed in this group are those in whom the condition has reached the convulsive stage.

1. A hypodermic injection of sodium luminal grs. 2 or 3 is given immediately— or sodium amytal grs. 5 or grs. 10 intravenously.

Morphine sulphate gr. ¼ to gr. ½ is given hypodermically only if absolutely necessary, and then only after the administration of glucose and spinal drainage have been accomplished.

2. 50 cubic centimeters of 50% glucose are given intravenously as early as possible.

3. The spinal fluid is drained as completely as possible (50 to 100 cubic centimeters). When spinal puncture is not possible or is impracticable, venesection is resorted to until the systolic blood pressure has been reduced 30 to 50 points.

4. Glucose and spinal drainage is repeated in 4 to 6 hours if marked improvement is not seen.

5. Magnesium sulphate is given by mouth or bowel in effectual doses.

6. No fluids (except magnesium sulphate) are given for 24 hours.

The pulse, temperature, respirations and blood pressure should be recorded every hour.

CASE REPORT

Mrs. W., age 23, primipara, admitted to the Sternberger Hospital.

Patient was brought to hospital two weeks prior to date of her expected confinement because of headache, blurred vision, nausea and vomiting. She was extremely nervous. Her face, body and extremities were very edematous.

The onset of these symptoms had been gradual for about ten days.

Her past medical history was negative except scarlet fever in childhood.

Physical examination showed a well developed woman. The heart and lungs were normal, except the second pulmonic heart sound was accentuated.

X-ray examination had already been made, which showed twin pregnancy.

The systolic blood pressure was 194, diastolic pressure 102.

Wassermann was negative.

The urine showed a cloud of albumin and many casts.

The eye grounds, according to consultant ophthalmologist, showed beginning albuminuric retinitis.

This patient was put on the treatment as outlined under Group II and the improvement within 24 hours was marked. The blood pressure dropped to 170 systolic and 90 diastolic. The headache was relieved. The albuminuria persisted. At the end of the third day she was delivered normally of twin girls, weight 5 and 6 pounds. Gas and oxygen was given during labor along with sodium amytal grs. 6 by mouth.

Following delivery the improvement was marked. Within 36 hours the blood pressure had dropped to 136 systolic, 80 diastolic. The headache, visual disturbances, and other subjective symptoms were entirely relieved. The urine, however, was still loaded with albumin.

The improvement was so satisfactory that the patient was taken from the strict fluid restriction and given fluids in such quantities as she wished.

On the fifth day she complained of slight headache. On the morning of the sixth day she complained of blurred vision and extreme headache. She was restless and did not appear at all well. Blood pressure had risen to 186 systolic, 96 diastolic.

The nurse reported that the patient had a restless, complaining night.

Within two hours she was seized with a violent convulsion.

A venesection was done at once and 350 cubic centimeters of blood withdrawn. Glucose 50 cubic centimeters of a 50% solution was given intravenously.

The convulsions continued at about 20 minute intervals until she had six such seizures.

A spinal drainage was done, the fluid being allowed to run until it stopped of its own accord. This arrested the convulsions, and the dehydration treatment was again instituted. The patient improved and was discharged from the hospital on the 23rd day after admission.

I feel that had the fluid intake been restricted over a longer period of time this patient would never have had eclampsia.

It is with profound gratitude to Arnold and Fay that I have reviewed their valuable, life saving work. The treatment which they have outlined has been given with the hope that it may be of the same comfort and service to you that it has to me.

DISCUSSION

Dr. George W. Johnson (Wilmington): Gentlemen, it is an ideal treatment, but the thing I want to stress is the treatment of eclampsia from a country doctor's standpoint. The condition of obstetrics to the country doctor comes down a great deal to an economic proposition. I talked about economics before, so I guess you think I am very mercenary. Possibly I am, but the doctor in the country that has to deliver most of the babies at home is up against that proposition. He very often sees these patients only when they are pre-eclamptic or when they are in eclampsia. If the practitioner will try to stress upon his patients the advisability of coming to his office for examinations he can get a great many more of them to come than he is getting at the present time. I don't know whether part of it is laziness or not; it might be, but there is a fee in it, and if you charge them for the office call, examine the specimen, take the blood pressure, and give them some advice it will be worth it to you and it will be worth it to the patient, and there you certainly have a field for missionary work.

If you find the blood pressure of these patients going up, and if you find a trace of albumin in the urine, my advice to you is to be radical. The patient can get pregnant again, and you can probably give her some better advice then, but after you get a damaged kidney, a kidney that has put out albumin in pregnancy for three to six or eight weeks, that

kidney is damaged, and very often permanently damaged. It is then too late. I believe from the country practitioner's standpoint, the thing to do is to put them on a diet that is non-protein, leave out meats and grease and beans; give them some epsom salts to take, and tell them to cut down their water-drinking. The average woman thinks the more water she can drink the more it will flush her kidneys. That is absolutely wrong, and if you tell them to restrict their water-drinking and notice the swelling go down, they will be impressed by it.

If these patients continue to have an elevation of blood pressure my advice to you is to give them a dose of castor oil and quinine. If that does not do any good, and if they have the money send them to the hospital; if they have not the money, get your nurse and some green soap, scrub them up and rupture the membranes. You cannot treat all these patients ideally but you can put them in labor, and if you put them in labor and get the baby out of there before they have damaged the kidneys you have saved them from a nephritis which may probably last them the rest of their life.

If you go to a patient, and she is in convulsions, and tell them to dehydrate, or how much water to take, they won't do it. The family slips it to them, and you can't control them in the homes, it is impossible. In the case of convulsions, if you will give these patients enough morphine and enough amytal—Dr. Sharpe didn't give much of it—it will control your convulsions, and that will satisfy your family much more than another course. In general practice you have to cater to the family more than you do when the patient is in the hospital, and as long as they are having fits, as the people call them, one after the other, they say, "Doctor, do something," and if you don't watch out you are going to do something wrong.

I certainly agree with Dr. Sharpe that these cases should not be hurried. If you can get the convulsions controlled, you can have the family under your control. If you don't get the convulsions controlled, what you are going to be forced to do is to give chloroform, and get the baby out; but the thing to do is to control the convulsions, satisfy the family and then let the woman deliver herself, if necessary rupture the membrane, put her in labor and let her deliver. I am pleading for you not to do a manual dilatation of the cervix and probably make the woman a cripple for the rest of her life just because the family is telling you to do something. The thing I am trying to tell you, if I can do it, is what is the best thing for you to do in the home. I don't deliver any cases at home at the present time, but I have done lots of it. My ideas might be wrong. If they are, I want somebody to tell me they are. (Applause)

Dr. Robert A. White (Asheville): He describes a method that works for him, and a technique that he can use. There are many good methods of treating eclampsia, and few men who use exactly the same one. It is important that every one doing obstetrics have a method for immediate use which he can use, and with which he can control convulsions.

Dr. Johnson in his discussion has brought out a number of practical points, which are of great value in work done outside of hospitals. I have found nothing that will control convulsions as will magnesium sulphate given intravenously. Many times the convulsion will stop while the solution is being given. Twenty c.c. of a 10% solution will control convulsions for from 2 to 6 hours, and may be repeated that often. If necessary, morphia or sodium amytal may be used in addition. Any doctor can carry a 20 c.c. or a 30 c.c. syringe in his bag, and a few ampoules of magnesium sulphate (10% solution), and glucose (50% solution). When the convulsions are under control, the glucose may be given with the same syringe —and the other treatments, as colon irrigations, venesections, purgations, packs, etc., carried on. I do not use the spinal puncture drainage, and would certainly not advise its use outside of the hospital.

During the past two years, fourteen eclamptics have been treated on my service (charity) at the Mission Hospital with no deaths, using the above method. During the preceding year or year and a half there were eight treated without the magnesium sulphate, and glucose, with six deaths.

I do not believe labor should be induced during the convulsive state of eclampsia nor do I believe pregnancy should be allowed to go on many days after the attack.

Anti-convulsive treatment should in most instances be continued for several days after delivery—since the danger is great that symptoms may return graver than before.

Dr. John Symington (Carthage): I want to thank the writer of the paper for this very fine presentation. Most of the discussion has been on preparturition eclampsia, but there are cases of postparturition eclampsia. I have had two cases of eclampsia in the time I have been in Moore County in six years. One was a colored case in Southern Pines. She went all right during labor until almost the end of the last stage. During the night I was called. I had not seen the case before. I heartily agree with what has just been said regarding the value of prenatal care. This the first patient had no prenatal care as far as I know. Towards morning she developed eclampsia when it seemed that only two more pains were necessary for the birth of the child. We took her to the hospital at once, and I remained there until she was out of the convulsions. We found that the eclampsia was brought on largely through the lack of prenatal care and also a slight constriction of the vagina. As soon as the child was born, she was all right. Now that is what has been generally discussed here so far.

There are cases of eclampsia after childbirth that is postparturition or postpartum eclampsia. We had one case of that kind, a white girl. She also did not have proper pre-natal care. She developed eclampsia after the baby was born. The doctor in attendance sent for me. I took along magnesium sulphate and glucose and gave her 20 c.c. of magnesium sulphate and 5 c.c. of glucose at once into the vein. The convulsions were from about ten minutes to fifteen minutes apart, and she had had twelve

before my arrival. The patient was completely unconscious. Until after the baby was born she was seemingly all right. The baby was normal.

I took that case also to the hospital because I recognized it was a hospital case. They continued the injections of 20 c.c. of magnesium sulphate and 5 c.c. of glucose, and carried out treatment very much as you have been discussing it here. The case remained unconscious for three days and then gradually recovered.

Both these cases were young primiparae and both patients and their babies are now, one and one-half years later, respectively, in good health.

Dr. E. B. Lattimore (Shelby): This paper that Dr. Sharpe has read applies to hospital cases, it seems, altogether, but it was very fine. The doctor who just preceded me talked along the line that I have to talk on. I don't attend obstetric cases any more except in the hospital, but I have attended about 2,000 cases in homes in the past. Some of them I had to get to by a bridle path, the roads were so narrow you could not use anything but a horse.

The method I have used, when I have given the morphine, is to give a dose of 15 drops of veratrum hypodermically. I would give the veratrum every half hour until the pulse was down to 60. Magnesium sulphate is all right, but I think the veratrum will give better results. Then, of course, out in the country we had to follow with a venesection, and this would usually do the work, but Dr. Sharpe's paper is very fine for hospital work, and I enjoyed it very much. I think it is well worth coming to listen to.

Dr. W. Houston Moore (Wilmington): I want to emphasize the necessity of prenatal care in the treatment of eclampsia. Prevention is the real thing. Of course, after it develops, it must be treated, but the main factor is to prevent it. Don't let it happen. If the patients are taken to a physician as soon as they are found pregnant, and properly dieted, advised and looked after carefully, in almost all cases they will be all right. Keep them coming to your office at least every two weeks. Examine the urine. Take the blood pressure. See if they are having any edema, or headaches, or bad symptoms. Question them about their daily life. If you do that, you are going to prevent a lot of this toxemia happening, prevent the greater part of it.

After your eclampsia develops it must be treated, and I think a very good treatment has been outlined. Your sedatives, morphine, sodium amytol and some other things can be used, the barbitrates. Give your magnesium sulphate intravenously, give your glucose 50 per cent intravenously. I do purge them. Give them a great deal of salts or castor oil through a stomach tube, and give them high colonic irrigations, and the first thing you know your patient will go into labor and come out all right. I do not advise the induction of labor in the active stage of eclampsia. I think they should be spared all the shock possible, but I do think that they should have their convulsions controlled and bring on

labor by your high colonic irrigations and your purgation. It is surprising to see how many of them will go into labor just in one or two days. Control your convulsions and labor will start.

Dr. George H. Ross (Durham): There is one thing that has not been said that we all need to think about. I have had a good many cases of this kind, and I find that with pre-eclampsia I put them in bed for four days, restrict the fluids to one pint, give them half an orange a day and they are all right.

Chairman Ranson: I will ask Dr. Spicer to take the Chair. I have a very short little paper here on "Pyelitis During Pregnancy." It will only take about five minutes to read it, so I am not going to detain you for very long.

. . . Dr. Richard W. Spicer of Winston-Salem assumed the Chair. . .

. . . Dr. J. Lester Ranson presented the chairman's address. . .

PYELITIS IN PREGNANCY

By Dr. J. Lester Ranson, Charlotte

(The Chairman's Address)

Acute infection in the upper urinary tract complicating pregnancy is of great enough incidence and is pathologically important enough to demand the attention of all physicians, who attend obstetrical cases.

This paper will not concern itself with all phases of the disease but will attempt to discuss what we assume to be the more salient points. For instance, etiology coupled with which is prevention.

The literature quite generally states that focal infection at other points in the body play a major part in renal infections. We shall not go further than to mention this theory, as it seems difficult to either prove or disprove. Of course, the presence of both foci and renal infection is frequently noted in the same individual, but to correlate them is next to impossible. The theory of compression of ureter by either enlarging uterus or by fetal head, dislocation of ureter by the same mechanism, edema of bladder mucosa, all these are doubtless present in pyelitis and pregnancy; for they have been repeatedly demonstrated, but at most they must be exciting factors rather than original causes. We believe, after studying our own records and those of other observers, that it is reasonable to suppose that pre-existing disease, malformations and anomalies of the genito-urinary tract are in many instances the original genesis of pyelitis in pregnancy. For instance, in a series of twenty cases recently analyzed in our own clinic it was noted that nine of these displayed undoubted evidence of prior pathology as follows:

Three cases showed previous recurrent cystitis since childhood.

Three cases showed previous pelvic inflammatory disease of severe grade.

Two cases showed marked nephroptosis.

One case showed second degree cystocele with cystitis.

These findings of ours are in general accord with the reports of Corbus and Dansforth, Rose and Rollins, Eisendrath and others, and substantially support the belief expressed by McKay of Charlotte, that congenital anomalies and urinary tract infections in female infants can be directly related to pyelitis of pregnancy in later life. It is interesting to note that in no case of our series was calculi demonstrated.

We further wish to note that in one case (not included in this series) a patient, who had been treated and apparently relieved for ureteal stricture before marriage, in two subsequent pregnancies presented no symptoms of renal infection.

We do not concern ourselves in this paper with diagnoses as it usually presents no difficulties except to remark that one case treated by us during pregnancy improved and was dismissed to return eight weeks later presenting the same symptoms, and two more weeks elapsed before we discovered the second illness to be typhoid fever instead of pyelitis. This is mentioned to show that while the reverse is usually true, i.e., many cases of pyelitis have been diagnosed as malaria or typhoid, it is still possible to be over-zealous in the other direction.

TREATMENT

This naturally divides itself into medical, mechanical, and obstetrical.

Medical treatment by means of urinary antiseptics, diet, increased fluid intake, antipyretics, etc., will be sufficient to provide relief in a fairly large per cent of cases. In our series eight of the twenty cases recovered without additional procedure.

Twelve were drained; two aborted spontaneously; two had induction of labor as a final resort.

When drainage is instituted all writers believe it should be as thorough as possible, i.e., as large a tube left in for as long a period as possible. Additional aid is achieved by pelvic lavage, using normal salines, sterile water or weak dilutions of mild antiseptics. Perhaps lavage does most good by keeping the catheter open.

Finally, what are the end results in our series? Six cases had recurrences in two and three subsequent pregnancies; two had frequent recurrences requiring drainage while non-pregnant and one ended as a chronic nephritic. This observation is in sharpe contrast to the statement made by Falls in A. M. A. Journal in November, 1923, that, "It has been noted that women who had pyelitis in one pregnancy seem to have a better prognosis later." But it is in accord with findings of other writers who believe the contrary to be true.

Finally our impressions are:

First, that pyelitis in pregnancy is a serious complication carrying hazard to the mother and frequently causing death to the baby.

Second, that pyelitis in pregnancy is often the result of previous anomaly or pathology and, therefore, one may apprehend its appearance and guard against it by thorough study of history and by careful physical examination of every expectant mother. Of course, we believe that focal infections should be eradicated when possible and that specific treatment be instituted as a matter of urinary system toilett in any suspected case.

Third, early and vigorous medical and mechanical treatment will prevent an appreciable percentage of serious sequellae.

Fourth, that vigorous follow-up during the puerperum and after will partially insure against recurrence.

DISCUSSION

Dr. Thomas M. McCoy (Charlotte): I am well aware of the two schools of thought: one that pressure from the pregnant uterus is the cause of the infection during pregnancy; also the other school that believes that there is a definite change in the urethra itself, especially the intramural portion of the urethra where it goes to the bladder.

The point that interested me particularly is the question of what part pre-existing infections play during pregnancy, and especially those of an anomalous origin. We know very definitely now—when I say we, I mean the urologists—that anomalies of the urinary tract in children are very common instead of rare. The percentages vary in the different series of course, but at the preset time we can say that anomalous conditions in babies in the urinary tract range anywhere from 40 to 50 per cent. The last series was reported by Hemholtz of the Mayo clinic. In one hundred cases he found 40 to 50 per cent anomalous conditions of the urinary tract. Regarding some of the X-ray pictures that Dr. Ranson has shown, one particularly of the eleven-year-old girl, it is impossible for a person like that in my opinion to become pregnant and go through labor without having a great deal of trouble.

That opens up a field of discussion, but we know most of these anomalies do occur in female children. Unfortunately, to bring out what I have in mind, the sexes never have been, as far as I know, that is male babies and female babies, differentiated as to the percentages that occur in females and males, but in my experience—and I have seen probably 150 babies—the overwhelming percentage occurs in females.

This is another point that is not generally appreciated except I believe by the urologist. It takes very little obstruction to the urinary tract to cause a stasis of the urine, and we all know a slight stasis of the urine is all that is necessary to invite infection. For example, to illustrate specifically, I mean in the male, a stenostomia in a male child or in an adult will cause a great deal of bad condition high up in the urinary tract, stasis, infection, and what follows.

Take the female, the lesion is in the urethra, a congenital stricture, infections of the urethra, all grades in the female, to say nothing about stenosis or strictures of the female urethra. Unquestionably, I think a

great many of these cases have pre-existing infection, a great deal of the trouble during their pregnancy is due to some slight obstruction in the urinary tract, whether it is anomalous or otherwise, because we know absolutely that you have free drainage, must have it, to have the urinary tract get rid of infection.

The only other point that I want to discuss is the question the urologist might play in treatment. I think it requires extreme, if I might use this expression, a fine degree of surgical judgment to say when to catheterize a pregnant woman and when not to. In my personal experience, I don't want to discuss this question too long, but in the last week I have been asked to see two women in different hospitals in Charlotte: one woman I catheterized and left the in-dwelling catheter in for six days and drained her. The other one I did nothing except to advise treatment. One was a woman that was a perfectly calm individual. She was very coöperative. She stood instrumentation very well. The in-dwelling catheters did not disturb her in any way. She slept quietly. She had from 20 to 30 c.c. of infected urine dammed up in each pelvis. She was six months pregnant, and I felt it was a common sense thing to leave the catheter in there.

The other case concerned a different type of individual. I don't think there is any precipitation of labor by instrumentation during pregnancy. I don't think the urologist has a very marked place in the treatment, but I do believe if he uses good judgment, at times he can help you out. At times I certainly feel very definitely that the question ought to be worked out as to pre-existing infections, and especially anatomical obstructions, the part they play in this disease.

Thank you very much!

Dr. Claude Whittington (Greensboro): Gentlemen, we have just listened to a very practical paper. I have been vitally interested in the subject dealt with by Dr. Ranson and must say that it concerns and confronts nearly all general practitioners. It is from the viewpoint of a general practitioner that I would like to say a few words.

The type of case presenting the biggest problem is the one calling us in during the latter one or two months of pregnancy with no previous medical attention, that now has a high fever, chills, backache, headache, etc., and we find the typical neglected "pyelitis with pregnancy." So many of these cases, due to present financial conditions, aren't able to go to the hospital, but must be content to remain at home and do as best they can with the treatment available. Gentlemen, this is the real problem for the general practitioner. Now that we have made the diagnosis, what are we going to do about it?

As we all know, the most common infective organism in these cases is the B. coli communis, however, it often happens that we have a mixed infection with numerous staphylococci.

Now as to treatment, I would say primarily, forcing fluids and giving urinary antiseptics is the routine procedure, often bringing good results. My preference for a urinary antiseptic is the serenium tablet, one to be

given three or four times daily. I also feel that it is advantageous to alternate from an acid to an alkaline urine to discourage the growth of bacteria. The alkaline urine is less irritating and I find patients much more comfortable this way. Serenium is active in both acid and alkaline media, and though it acts more slowly in exterminating the B. coli than the staphylococci, it is as I say my drug of choice at present, and my final results have warranted me using it. I continue its administration until two weeks after the symptoms subside. The edema that sometimes complicates the above regime of forcing fluids can at times be greatly benefited by using Parke-Davis uroxyl compound, which is both a urinary antiseptic and urinary diuretic.

The patient who does not react as we so often hope they will with the routine just outlined, should by all means be admitted to the hospital and while continuing with the treatment outlined should have in addition the benefit of colonic irrigations, and intravenous urinary antiseptics, such as uritone in 5 c.c. ampules. I feel that in closely observed cases resistant to the treatment above described and during the latter month of pregnancy it is commendable therapy to give small doses of vasopressin or pituitary extract in an effort to stimulate the ureteral peristalsis and diminish the size of the dilated kidney pelvis (Hofbauer and Julius Miller have reported good results with this).

One other very important and excellent therapeutic agent available, is the in-dwelling catheter and pelvic lavage with weak silver solutions. I feel that in the stubborn case, resisting the usual routine treatment, it is always safest and best to call in a urologist, for his opinion and assistance is of untold worth.

Dr. J. Lester Ranson: I am sorry, gentlemen, we have gotten impatient because it is always rather discouraging to face the thing late in the afternoon.

There was one case that I just want to bring to your attention. It won't take but just a second. You saw this picture where you had a very dilated kidney on both sides. I had one case that had repeated attacks of pyelitis. She had about six or seven children. In working out her case we found the right kidney very large and had 150 c.c. of retained urine and pus that was withdrawn, and she was treated medically and drained several times, and then her kindey was removed. Within three months after her operation she became pregnant, went through that pregnancy without any symptoms of pyelitis at all and her one kidney carried her through safely.

I want to thank the gentlemen for their coöperation in putting over this program, and I want to ask one favor of you, in behalf of our chairman for next year, Dr. Hamblen. It will do him a great service if the men throughout the state who are willing to write papers will get in communication with him during the year. I was at a loss to know how

to prepare a program. I wrote to the different men throughout the state that I personally knew would be interested, and I took the medical directory and looked through it and sent letters to all those men. I had quite a number of replies, and I am sorry I could not put all the papers on. We have Dr. A. B. Holmes, of Fairmont; Dr. Goodwin; Dr. Spikes; Dr. Ormond; Dr. George Ross; Dr. Watkins; Dr. Menzies; Dr. Mallett of Henderson; and Dr. Highsmith: all of these men volunteered papers, but we did not have room for them on the program.

If there is no further business, the session will stand adjourned.

. . . The session adjourned at 6:15 o'clock. . .

SECTION ON PRACTICE OF MEDICINE

Wednesday Afternoon, May 2, 1934

Dr. P. A. Shelburne, *Chairman,* Greensboro

The Section on Practice of Medicine convened in the Ball Room, May 2, 1934, at two-ten o'clock, Dr. P. A. Shelburne presiding.

Chairman Shelburne: I regret to announce one change in the program as issued. Dr. Stephen Davis, the fourth speaker, will not be able to be present because of illness.

The first address is that by Dr. Verne S. Caviness of Raleigh on "The Treatment of Spirochetal Bronchiectasis."

SPIROCHETAL BRONCHIECTASIS

By Dr. Verne S. Caviness, F.A.C.P., Raleigh, N. C.

HISTORICAL

The disease bronchiectasis has been known for many years. Probably the first accurate description, as well as the first definite recognition, of bronchiectasis was made by Laennec who published an account of his observations in 1819. But for many years afterwards, written records of the disease are very scarce and incomplete. It appears that the disease has often been confused with pulmonary tuberculosis, and even at the present time often is not differentiated from that disease.

In 1904, Castellani, working among the natives in Ceylon, discovered in several cases of acute bronchitis that there were many spirochetes to be found. These patients had hemoptysis as the chief symptom. Castellani was looking for tubercle bacilli but accidentally discovered spirochetes. Since that time, various observers in widely separated localities have reported similar findings.

In 1927, David T. Smith, working at Ray Brook, reported spirochetes in the sputum of patients with bronchiectasis. Many other workers have confirmed these findings, and there appears to be no doubt as to the frequent association of spirochetes with bronchiectasis, though the causal relationship is often questioned.

It is accepted by many observers, however, that there is a definite form of bronchiectasis that is due to spirochetes and some observers claim that all bronchiectasis is due to spirochetal infection.

ETIOLOGY

Several types of spirochetes have been recovered by different observers from the sputum of patients with bronchiectasis. Probably the entire list of the catarrhal group of respiratory infecting organisms may be found at times along with the spirochetes.

In all of my cases of bronchiectasis seen in the past two years, spirochetes have been present; fusiform bacilli have been present in many of the cases, but have not been constant. The type of spirochete has varied in different cases.

I do not feel that we are justified at this time in asserting that all cases of bronchiectasis are spirochetal in nature since so many observers deny their ability to demonstrate spirochetes in some cases.

PATHOLOGY

The process of bronchiectasis consists of dilated bronchi. Essentially, the process presents either sacculations or fusiform dilatations. In the acute stages, the fusiform types of lesions predominate; as the disease becomes chronic, sacculations appear. Apparently, the infection usually spreads from the mouth or throat into the bronchi, usually into the lower lobes, more often the left side being involved. An inflammatory process follows, which is usually diagnosed as influenza or a simple acute bronchitis. The spirochetes burrow into the bronchial wall and destroy the elastic fibers. Having lost the natural tone, the walls rapidly stretch under the strain of coughing, producing fusiform dilatations in the bronchi and bronchioles. The process has been likened by David T. Smith to the mechanism of the production of aneurysms by the spirochete Treponema Pallidum. Certainly there is an interesting mechanical resemblance and it is a matter to provoke serious thought as to the etiology of all cases of bronchiectasis, since we appear to have the same type of changes in bronchi in all cases of bronchiectasis.

As pus accumulates in the fusiform dilatations of the bronchi an ideal habitat begins to be formed for the anaerobic spirochetes and as coughing continues, further stretching occurs. Sacculations are the result. The size appears to depend, to a large extent, on the duration of the disease.

SYMPTOMS

The outstanding symptoms of bronchiectasis are:

1. Cough, paroxysmal in character and worse in the early morning.
2. Large amounts of foul sputum.

The cough persists until the sacculations are emptied. When they refill, cough occurs again and persists until they are reemptied. In the interim, there is a relative freedom from cough. Sputum varies in amount. There may be less than 100 c.c. per day, or it may appear as two pints or more. Often the sputum will separate into three layers:

a. At the bottom of the glass is a thick purulent or granular layer.

b. Thin mucoid middle layer, probably principally saliva and bronchial secretions.

c. The top frothy layer which is often discolored.

However, this exact differentiation into layers is not always demonstrable.

There is almost always a most disagreeable odor to the sputum which at times produces a feeling of sickness in the patient himself as well as in those associated with the patient.

Small pearly gray flakes are always to be found in the bottom layer which are apparently composed principally of mucus and contain the spirochetes and the fusiform bacilli if present. Pus, fatty acid crystals and perhaps hematoidin are present in the bottom layer. Elastic fibers are usually absent. Hemoptysis is a very frequent symptom, occurring with greater frequency in this condition than in pulmonary tuberculosis. The amount of blood varies from streaks to fatal hemorrhage in some cases of bronchiectasis. It is rather constant in spirochetal bronchiectasis.

It is very conspicuous in bronchiectasis generally that the unfortunate victims are usually of normal weight or above and often are robust. They usually are healthy and rarely appear to be very sick.

Fever is frequently present, and this may account for many cases of obscure or unexplained continued fevers. Usually the fever does not rise very high,—usually not above two degrees,—unless there is some obstruction to drainage of pus, or there is an extension of the process into sound lung tissue.

Clubbing of the fingers is a very constant sign in the more advanced cases and the toes also may show clubbing. Clubbing at times may become extreme.

Abscess of the brain with typical symptoms occurs relatively frequently.

DIAGNOSIS

Clinically, the diagnosis is not always easy. The history of frequently recurring colds associated with obstinate bronchitis is quite suggestive in the earlier cases. Later there will be an increase in the violence of the paroxysms of cough with a marked increase in the volume of sputum. The sputum is usually very foul smelling and may separate in the glass into three layers.

On physical examination nothing may be obvious on inspection; only in the acute states or in far advanced cases are we likely to note any changes in expansion, and even there the changes will be slight.

Percussion may give a tympanitic note if there are large sacculations near the surface; or if there is pneumonitis present about the dilatations, an impaired note may be obtained. Large sacculations filled with pus will yield an impaired note on percussion, especially if near the surface of the lung.

Auscultation is most interesting and is equal in importance to the history in making a fine diagnosis. Coarse rales are encountered when the sacculations are filled, or nearly filled with pus; when empty, no rales are to be heard, and the breath sounds are likely to be normal in character except for roughening and at times being slightly louder than normal. Early cases may present only loud crackling rales. So soon as pus reaccumulates in the bronchiectatic dilatations, coarse bubbling rales will

again be audible. Rarely will any observer be able to discover identical findings in the chest of a patient on two different examinations. A single cough by the patient is likely to change the picture. Usually, lesions will predominate in either one side or the other and often lesions will be present in only one side of the chest. When there are bilateral lesions, only a few minutes time may be necessary to change the predominance of abnormal physical findings from one side to the other side.

It is well to bear in mind the distribution of the lesions in making a differential diagnosis: pulmonary tuberculosis usually begins at or near the apex; bronchiectasis almost always begins at one or both bases posteriorly. Bronchiectasis is essentially a disease of dilatations of bronchi; hence the rales are likely to be coarse. Pulmonary tuberculosis is an inflammatory process of the lung tissue; hence the rales are finer than in bronchiectasis. However, we must not forget that either disease may occur in any part of either lung, and that both diseases may coexist.

The sputum must be studied in making a diagnosis. Stained smears are of value, but dark field examinations and anaerobic cultures of sputum raised late in any paroxysm of coughing are most important. We appear to be dealing chiefly with anaerobic organisms and the first sputum expelled is not so likely to contain the spirochetes.

Lipiodol or other substances injected intra-tracheally permit X-ray pictures to be made that serve as the final check in the diagnosis. This shows fusiform or cylindrical dilatations of bronchi, usually in the lower lobe, of regular or irregular outline. Or, in more advanced cases, cups, resembling a semilunar cup of an aortic heart valve are seen partly or completely filled with the opaque substance used to produce the contrast films.

Often this also shows up areas about the dilatations that are definitely inflammatory in character and are mild types of pneumonitis. At times these areas may be detected in plain flat plates, but plain plates are not to be depended upon in making a diagnosis; such plates are far less reliable than careful physical examinations.

Bronchoscopy may show bronchiectatic cavities, perhaps with ulcerations or containing pus. But for the average private patient bronchoscopy is not a very acceptable procedure for either diagnosis or therapy except in extreme cases.

Any chronic cough which persists longer than two weeks, or any frequently recurring cold, especially if associated with large amounts of foul smelling sputum, perhaps streaked or stained with blood, should arouse the suspicions of the attending physician and should instigate a search for spirochetal bronchiectasis as well as for pulmonary tuberculosis.

TREATMENT

General treatment is very important. The patient needs postural drainage first of all. He can quickly determine which side of the bed is better for this purpose, and in the average case as seen in this state one or two

drainages per day will prove to be ample. At least one drainage should be used each day, and if only one, it should be used before rising in the morning. This empties the dilatations and greatly reduces the amount of coughing and expectoration to be expected during the remainder of the day. Should drainage be too obstinate, a drink of hot water may stimulate drainage and facilitate emptying.

The patient should secure an extra amount of bed rest each day. An hour or two in the early afternoon is beneficial. In severe cases, postural drainage should be combined with the afternoon rest period. This is more important in febrile cases.

Diet should be full. The patient should have a well balanced diet of full caloric value. Milk, eggs, tomatoes and other fresh vegetables should be included for the vitamin value. Fresh air and a reasonable amount of exercise help. All these measures are of more value in early cases than in more advanced cases.

Infections about the teeth and tonsils as well as sinuses should be cleaned up since these are likely sources of the infection.

Medical treatment is of value, but is a debated subject. Cod liver oil and iodides seem to be of value in many cases unless they disturb the digestion. When spirochetes are found in considerable numbers in the sputum, arsenic intravenously is indicated, and in my hands has produced very gratifying results. It is probably best used as neoarsphenamine, but is indicated only when spirochetes are found on sputum examinations. Excessive amounts of arsenic appear to be deleterious. Bismuth has been used with varying results. Its value is rather uncertain. Mercury is of very doubtful value.

Artificial pneumothorax has been advocated and seems to be of value in selected cases through aiding in facilitating drainage. However, in some cases drainage is impeded and the treatment should be stopped.

In very severe cases, surgery is probably permissible. Here, the operation of choice often is lobectomy. But the operative mortality is so high that it is justified only by the discomfort of the patient and dangers of metastatic spirocheta brain abscesses.

Phrenicectomy is used at times, apparently with results similar to its use in pulmonary tuberculosis.

Surgical collapse of the chest wall appears to be of benefit in some unilateral cases.

Severe cases may be benefited by changing to a dry climate, but this is often a costly experiment.

Intratracheal injections of iodized oil appear to be of some therapeutic value in some cases, but often produce more violent paroxysms of coughing for twenty-four hours or longer after the injection due to difficulty in raising the oil. Iodides given by mouth are probably equally efficacious.

PROGNOSIS

The prognosis depends on the degree of involvement. Early cases in which there is not a large amount of damage, are much more amenable to treatment. These cases can be made quite comfortable and may have complete freedom from symptoms, except for a tendency to contract colds much more easily than the normal. Some cases appear to make an entire recovery.

Far advanced cases may be greatly improved, so much so that the cough is considerably lessened, sputum decreases or is almost completely absent, and the foul odor ceases. But, if we can only eliminate the danger of metastatic brain abscesses, it is well worth the effort. Following surgery, if the patient survives the operation, there may be a complete cure, but the surgical mortality is so high that only in exceptional cases does this appear to be justified.

It is essential that we bear in mind the fact that we are dealing with changes in the bronchi which are relatively permanent in nature, and that the normal structures can be restored only with great difficulty if at all. The patient must be taught to be content with improvement and not expect a complete cure.

Any patient having any pulmonary spirochetal infection lives in constant danger of extension of the infection, especially to the brain. Herein lies perhaps the greatest danger of the disease and certainly the most serious phase of the prognosis.

CONCLUSIONS

1. Oral types of spirochetes are often present in bronchiectasis and are probably responsible for the primary pathology.

2. Bronchiectasis is a dangerous disease because of the high incidence of metastatic brain abscesses.

3. Bronchiectasis, while it does not give the victim the appearance of being sick, produces considerable embarrassment and disability.

4. Diagnosis of spirochetal bronchiectasis can be made satisfactorily only by a careful study for anaerobic organisms.

5. Treatment must consist of general hygienic and dietary measures as well as arsenicals.

6. The fibroid changes in the bronchi are permanent and incurable; hence, treatment should be instituted as early as a diagnosis can be made. Even with an early diagnosis, we cannot hope to do much more than reduce the size of the cavities and procure regular emptying of the contents. In the more advanced cases, only rarely can so much be accomplished.

DISCUSSION

Chairman Shelburne: I should like to ask the following committee, Dr. J. M. Northington, Dr. Fred Taylor and Dr. R. S. McGeachy, to serve in the selection of the best paper presented for competition for the

Moore County Medical Society Medal, to be given this year. They have already been acting and I merely mention that they have been appointed.

I would also like to ask them if they will serve as a nominating committee for Chairman for next year.

I should like to say, in case you might not know, each paper shall be limited to fifteen minutes and any discussion to five minutes. I will sound the gavel at the end of fourteen minutes, allowing one minute to close the reading of your paper.

Dr. S. M. Bittinger and Dr. David T. Smith will open the discussion on the paper just rendered by Dr. Caviness.

Dr. S. M. Bittinger (Sanatorium): Mr. Chairman and Members of the Medical Section: I certainly think we have been listening to a very instructive and interesting paper this afternoon by Dr. Caviness on bronchiectasis. It is a timely subject because I don't believe we realize how very common this condition is. It does not always exist in the severe forms as the textbook pictures tell us, but we do have a great many cases of the milder types which, if they are not treated, very likely will go on and become the more severe type of the disease.

The symptoms are not always very marked. Sometimes we have a good many cases coming to the Sanatorium with a diagnosis of tuberculosis made previous to admission with only a history of a little cough and a small amount of expectoration, particularly in the morning, or there may be simply a history of blood spitting or actual hemorrhage at times amounting to several ounces. Frequently the physical examination shows no characteristic findings. They may be entirely negative, probably a few scattered inconstant dry rales at the bases. The simple X-ray, either the stereoscopic or single picture, will not show very definite findings, sometimes they are entirely negative, but with lipiodol injection and then X-ray, we often find a mild type, usually the tubular dilatation, which has not become so advanced as to form the cups or sacculations.

These early cases are the ones that are most amenable to treatment. They are the ones that we should be always on the lookout for. The others sometimes are so advanced that there is very little that can be done in the treatment more than palliative. There has been so much damage to the bronchial wall with marked dilatation that it is very hard to accomplish anything more than symptomatic treatment. The patients are often toxic, frequently they are the type that are most likely to develop brain abscess, or die from asthenia or from secondary infection as bronchial pneumonia. Of course some of these cases, if they exist over a long period of time, may develop malignancy—being grafted on the old bronchiectic condition, also sometimes malignancy starts or gives rise to bronchiectasis.

The recognition of repeated respiratory infections, particularly of the upper respiratory tract, is necessary, as so often they predispose to the later development of chronic lower respiratory disease, followed finally by definite damage to the bronchial wall, then the formation of anaerobic

conditions is followed by the engrafting of the spirochetes and fusiform bacilli in symbiosis, as one might call it.

We should always be on the lookout for recurring colds, as Dr. Caviness has mentioned, colds occurring particularly in the winter time, then clearing up in the summer and finally the condition becoming continuous, and followed finally by the development of the definite picture of a bronchiectasis a number of years after the initial infection.

I think sometime it may be that we can get tuberculosis under control; there will be more hospitals used (sanatoria if you want to call them), to handle these cases that have these chronic respiratory infections. I heard a remark by Dr. Stengel at Chicago a short time ago, in a statement that practically all cases of chronic bronchitis and asthma had bronchiectasis. It may be they are of only the tubular or mild type. I sometimes think that statement—even coming from such an authority as he is—is a bit exaggerated, there probably not being such a large incidence as he has indicated, but certainly these infections do predispose to bronchiectasis.

In regard to the treatment: the early cases—if there is an abscess in any part of the body or anywhere in the lung, and we can evacuate the pus by some method, I don't think there is any question about doing it; it is a primary principle of surgery that this procedure probably does more good than any other form of treatment and is known as postural drainage.

This postural drainage is probably the greatest in value and when that is combined with some surgical method as pneumothorax in the early cases before many adhesions have formed in the lower portion of the lung, a good deal can be accomplished at times. The great trouble is so many cases come to us with a history of the disease existing over a period of years, and by that time the adhesions have become so dense and numerous it is impossible to obtain a satisfactory collapse. A short time ago I was reading an article by Riest of Paris in which he claimed that in the early cases pneumothorax was as much a specific for bronchiectasis as it was for tuberculosis. In the same way paralysis of the diaphragm by phrenicotomy seems to help some patients. The rise of the diaphragm relaxes the lung and allows a better drainage of these dilated bronchi.

It certainly is to be recommended at times and at times it will tend to control a serious hemorrhage, because in some of these cases of bronchiectasis there are profuse hemorrhages, more profuse than you see at times in tuberculosis.

We have had very little experience with the use of lipiodol in the treatment. Of course we use it a great deal in making the diagnosis but there have been a good many reports of good results by repeated lipiodol injections. I agree with Dr. Caviness that very frequently there are bad after-effects from severe coughing and so on. The use of vaccines is indicated I think in some cases and it seems to do some good. They certainly seem to help to diagnose recurrences in some of these respiratory infections, which activate the vicious cycle—I am speaking of the autogenous vaccine.

Again I want to thank Dr. Caviness for asking me to discuss the paper and I am sure we have had a very interesting address from him. (Applause)

Dr. David T. Smith (Durham): I have enjoyed this excellent paper by Dr. Caviness and the discussion by Dr. Bittinger.

There are a number of forms of bronchiectasis. Bronchiectasis may be produced by contracting scar tissue in the lung. This occurs in certain cases of chronic organizing pneumonia. Probably 50 per cent of the bronchiectasis in childhood is of this type. Again, tuberculosis, especially basal tuberculosis, can result in ulcerations of the bronchial wall which causes true dilatation of the bronchus as Dr. Caviness showed in one of his slides.

I have been studying bronchiectasis for over ten years and I find about 80 per cent of the patients who show dilatation by lipiodol injection have fusiform bacilli and spirochetes in their sputum. One can demonstrate these organisms without much difficulty in about 50 per cent of the cases. In the other 30 per cent you must examine the sputum repeatedly, particularly the sputum that is coughed up at the end of postural drainage.

Postural drainage is unquestionably the most basic element in the treatment of bronchiectasis. If that is supplemented by arsenic therapy and by a good diet full of vitamins, excellent results can be expected in the type of case that drains freely. How can we tell which case is going to drain freely and which one is not? This question is of practical importance because no improvement can be expected from medical treatment if the patient does not completely empty the bronchiectatic pockets. We learned to pick out the cases which would respond to medical treatment by observing the behavior of the iodized oil in the lung. If the oil went into the pockets without difficulty and was completely emptied from those pockets twenty-four hours later, then you knew there was free drainage from those areas and good results will follow postural drainage and arsenic therapy. If, however, due to stenosis in the bronchi, you could not get the oil into the pockets or what was still more distressing, you could get the oil into the pockets but could not get it out by postural drainage in less than twenty-four hours, then practically no benefit could be expected from medical treatment. These cases with bronchial stenosis or one way valves should be referred first to the bronchoscopist and if he fails, to the thoracic surgeon. I don't feel that any case of bronchiectasis should be considered hopeless until he has been put through this procedure, because some of the cases that at first glance seem to be hopeless, eventually make very satisfactory improvement.

I want to refer briefly to just one case of a medical student who developed a bronchial pneumonia which did not clear up. He received a diagnosis of tuberculosis and was sent away to a sanatorium in another state although tubercle bacilli were never found in the sputum. Two years later he came under the care of Dr. McCain and Dr. Bittinger who made a diagnosis of bronchitectasis by lipiodol injection and demonstrated fusiform bacilli and spirochetes in the sputum. The patient was given the

treatment described by Dr. Caviness and made a complete symptomatic recovery, went back and finished his medical course and is now ready for an interneship.

CHAIRMAN SHELBURNE: Is there further discussion?

DR. F. R. TAYLOR (High Point): Mr. President, I would like to suggest a matter that has just come into my mind in connection with this: if strain of the bronchi from extremely severe coughing is a factor in the production of bronchiectasis then it behooves us in some of these acute brief violent coughs, tracheo-bronchitis and so forth, to give enough medication to keep the patient sufficiently at rest to prevent that. We don't want to stop all cough, but the thing that I have in mind is this: we see nowadays so many proprietary cough mixtures recommended, sent out to the doctor, advertised in most widespread manner, and one would think they were specific controlling factors for cough. So far as I know there is nothing that will adequately control a cough other than narcotics, of which, of course, codein is incomparably the safest. I think we should use codein in these acute conditions as a matter of prophylaxis in adequate doses and not let ourselves be misled by advertisements of syrup of this and syrup of that, with some prominent manufacturer's name attached, that does not require a narcotic blank. We should give enough to check this thing and control it.

Then I would just like to ask a question for information. That is: where you are using postural drainage and that kind of thing; not with the hope of producing any cure but merely as a sort of deodorizing proposition (because the odor of the sputum in bronchiectasis may be extremely foul), whether some form of creosote, particularly in a form non-irritating to the stomach, such as calcreose, isn't a good thing to give to the patient to check that odor, or counteract it?

CHAIRMAN SHELBURNE: Is there further discussion of Dr. Caviness' paper?

DR. CLAUDE O. ABERNETHY (Raleigh): Mr. President, I want to sound a note of warning about the use of arsphenamine in any infection, particularly in the chronic infections. It is a rather powerful drug and the end results you get with the subsequent liver degeneration following, is a serious condition. I want to recommend to you people who are going to treat these cases the use of bismuth. It is a well recognized fact at the present time that in the chronic condition bismuth gives better results probably than arsphenamine even in the treatment of syphilis. The dentists are using it now in Vincent's infection, bismuth locally, and it is a much safer drug to use.

CHAIRMAN SHELBURNE: If there is no further discussion, I will ask Dr. Caviness to close.

DR. CAVINESS: Mr. Chairman, I wish to thank each of the gentlemen for discussing my paper. I don't claim originality in it. I have done a lot

of work on it, and find it a most interesting subject, particularly in view of the fact that the condition is so widespread. Until I became particularly interested in this subject I had no idea that there were as many cases of the disease as there are. Of course it is more or less of an adage in medicine that we find what we look for. I think that there is danger in the use of neoarsphenamine, no matter what condition is being treated with that form of arsenic. I think everyone should always consider the danger. I have used that and I have used bismuth, but I think that I get much better results from the neoarsphenamine and when handled carefully I don't think that there is any great amount of danger in its use, particularly if used in small doses and not repeated too often.

As I said in the paper, over-treatment is a danger and is deleterious rather than beneficial. I think Dr. Taylor's idea with respect to creosote might work out very well. I haven't tried that but it would be very interesting to try it.

CHAIRMAN SHELBURNE: Next on the program is Dr. W. M. Johnson of Winston-Salem, whose subject is "The Emotional Factor in the Practice of Medicine."

THE EMOTIONAL FACTOR IN THE PRACTICE OF MEDICINE

By WINGATE M. JOHNSON, M.D., F.A.C.P.,
Winston-Salem, N. C.

Perhaps the most noteworthy of the many changes that have taken place in the practice of medicine within this century is the increasing recognition of the influence the emotions exert upon the human body. It seems only yesterday that a medical graduate was sent out from his alma mater with the distinct impression that except in the infectious diseases there was a physical basis for all the ills the flesh is heir to, and that if he failed to locate it and have a surgeon cut it out, only his stupidity stood between the patient and recovery. It is a long way from Deaver's famous epigram, "Every case of indigestion ought to be operated upon," to Alvarez's admission that more than half the patients who consult him for digestive troubles have no organic basis for their symptoms—but this distance has been spanned within comparatively modern times. The time has passed when one can be most successful in any branch of medicine without some conception of psychology and psychiatry; and it is almost impossible to follow general practice or internal medicine without being a fair amateur psychiatrist.

There are a number of reasons for the increasing interest taken in the emotions. There is a natural reaction against the over-emphasis placed upon structural changes by the Virchow school of pathology. The great popularity of the doctrine of focal infection has had a natural decline from the dizzy height to which it was carried by its too-enthusiastic friends.

Among more positive factors are the investigations of Sigmund Freud and his followers, and the researches of W. B. Cannon upon the physiological changes due to pain, fear, rage and hunger. Alvarez has perhaps done more than any other modern writer to influence the trend of thought in his specialty, and he has been emphatic in stressing the emotional factors in digestion. Most pediatricians are trained to recognize the tremendous influence upon the growing child's future of the amount of nervous tension in his environment. The high tension lives most of our patients lead, and the emotional stress of the post-war era, have been responsible for a great increase in neurotic individuals. I fully believe that insurance companies, with their requirement of complete rest in bed to entitle their clients to "sick benefits," have increased the faculty of self-pity. "Fifty years of health insurance in Germany has seen the number of days lost from labor through sickness in the insured population increase nearly threefold. Twenty years in England doubled the original rate."[1] Unquestionably the multitude of hungry lawyers, who make most of their living by chasing ambulances, have done their bit to raise the quota of "traumatic neuroses." The increasing complexity of life itself: the vastly more mechanical devices that drive us as truly as we drive them; the multiplication of organizations within our churches, our communities, our colleges, and even within our secondary schools, demand more and more of our time and nervous energy. The growing tendency of Americans to drink caffeinated or alcoholic beverages to "pep them up," and then to take sedative hypnotics and coal-tar derivatives to slow them down, certainly does not help either our nervous nor our circulatory systems.

Since the end of our national spree in October, 1929, few doctors have failed to see numerous victims of the terrific universal headache that followed. Indeed, the physician was lucky who did not have to consider himself along with other patrons of Wall Street's national Monte Carlo. I, for one, do not hold with Freud that sex difficulties are at the bottom of all nervous crack-ups. Where sex has wrecked its thousands of homes and nervous systems, worry over finances has wrecked its ten thousands. One of the hardest things about the practice of medicine is to know what a patient needs, and not be able to give it to him; but during the past four or five years it would have taken the resources of a Rockefeller to have treated many of mine—since the remedy needed varies from five to fifty thousand dollars, or more.

Sometimes the other condition may prevail, when the patient may suffer from monetary plethora instead of monetary anemia. If acute, this condition may give rise to considerable nervous disturbance. Let me illustrate by a single case report. A middle-aged couple who had of necessity lived very frugally during the first two decades of their married life suddenly acquired more money than they knew what to do with. A servant was hired, releasing the wife from her household duties; but then time hung heavily on her hands. Her education had been meager, and she

had never learned to appreciate literature or the arts. Having nothing else to occupy it, her mind naturally turned inward, and within a few months she had become a full-fledged hypochondriac. As her family doctor was not "sufficiently interested" in her case, she consulted a "nerve specialist," who told her that her nerves were exhausted and that she needed a six weeks' rest-cure in the hospital, with a nurse to feed her and give her daily massage. When told of this by the husband, the family doctor exploded with more truth than tact, "Rest, hell! What she needs to do is to get in the kitchen and sling some pots and pans around like she used to do. She's had too much rest now—that's all's the matter with her."

The effect of the emotions is most apt to be reflected in disturbances of the digestion, with the circulation a close second. No doctor should fail to read Alvarez's classic work, "Nervous Indigestion." In it he makes the admission already quoted that more than half the patients who consult him have nothing organically wrong with their digestive apparatus: but qualifies this statement by saying that such patients suffer more than those with organic disease.[2]

The bugbear, mucous colitis, is on the borderline between functional and organic. I do not intend to try to place it where it belongs, but merely remind you of its baffling nature. How many of us have had the humiliation of having operated or advised operation for a supposedly diseased appendix, only to have the patient continue to suffer just as before! I am not quite willing yet to accept the Freudian explanation that such cases originate in infancy because the victim is trained too early to have regular stools.[3]

There is no more trying type of patient to treat than the one who tries to analyze his or her own digestive ability; who will eat every new article with fear and trembling, and wonder if it will agree; and who blames the last thing eaten for any discomfort after meals. Sometimes it is possible to reason with him, and convince him of his folly; but often the doctor is sidetracked for some dietary faddist. In passing, it may be observed that the commercialization of the vitamins by adroit advertising has tremendously aided and abetted the dietary quacks.

One must be on guard, of course, not to do a patient an injustice by assuming too readily that he is a neurotic. Only after a thorough examination, to eliminate all physical causes, should such a diagnosis as "nervous indigestion" be made. And it should be borne in mind that a duodenal ulcer is very prone to follow a prolonged nervous strain.

The "sick headache" of many patients is frequently of emotional origin. Certainly fatigue and excitement combined often serve to start one. There has long been a dispute as to whether the headache or the disordered digestion is primary. Alvarez, it seems to me, makes out a convincing case for the headache as primary.

In the study and treatment of hypertension the emotional factor should be considered. While heredity is perhaps the chief factor, the emotions are of next importance. Even in taking a blood pressure reading, the

influence of the emotions must be remembered. What doctor has not had the experience of having a consultant get a reading much higher than his in seeing a patient for the first time,—and the reverse experience of getting a higher reading on another doctor's patient? The excitement of having his pressure taken by a stranger is enough to account for the difference. And in the treatment of persistent hypertension, it is of paramount importance to regulate the patient's life, so far as possible, to avoid all unnecessary emotional strain.

Recently it seems to me that there has been a marked increase in the number of young girls in their teens with menstrual periods too frequent and too prolonged. I have not seen this referred to in medical literature, but Mr. Charles W. Stevens, of the Department of Biological Research of Parke-Davis Company, recently told me that within the past few years he had had reports from the physicians in his territory that corroborated this observation. I have a theory which I believe explains these cases. With the greater freedom of the sexes that has come within the post-war period there has been a great increase in "necking" or "petting." The sexual excitement thus produced with the consequent congestion of the pelvic organs, without the relief of intercourse, is responsible for the increased amount of bleeding from the uterus. Purely from the physiological point of view, and laying aside the moral issue, these girls might be better off if the congestion thus aroused were relieved by "seeing it through." I am not, of course, going on record as advocating such a procedure, even though I might claim Scriptural backing by a liberal interpretation of St. Paul's opinion that "It is better to marry than to burn."

To Dr. Eva F. Dodge I am indebted for a case report that strengthens my theory. A single girl 20 years old came to her with a history of having begun to menstruate at 14. Her periods were scant and regular until February 1933, when she menstruated more than three weeks, then with a week's intermission, menstruated for four weeks in March. During April, May, and June, her periods were normal. In July she again menstruated for three weeks. All examinations, including the pelvis, were negative: but she admitted having indulged in lengthy petting with a young man to whom she was engaged during December, January, and February. The engagement was broken in March, and there was no petting until June and July. It will be noted that the petting preceded the menorrhagia by a few weeks each time, and that the menses were normal when there was no sexual excitement.

That the foundation for many of the neuroses is laid in childhood is almost universally accepted, and one of the most wholesome tendencies in modern pediatrics is to have the child reared as far as possible free from unwholesome "complexes," "fixations," and "obsessions"—all of which might be covered by the one word "fears." There is some danger, however, that in stressing to parents the great importance of the earliest years, the impression may be left that by the time a child enters school—or even the kindergarten—the whole pattern of his life has been so

irrevocably determined that it can never afterwards be altered. This may be true—but it is too pessimistic a doctrine for most of us parents to want to believe.

The treatment of the neuroses is made much harder by the fact that they usually represent the subconscious wish to be sick in order to escape the stern responsibilities of life, and at the same time be the center of attention. This wish is apt to be so cleverly disguised that it may be impossible to convince either the patient or the family that he is not really quite sick. The treatment of such a patient requires a vast amount of wisdom, tact, patience, and courage on the part of the doctor; yet the solution of such a case may be as fascinating as the unraveling of a detective mystery.

Let me give, briefly, a few case reports:

Case 1. A young lady in her very early twenties was suffering with severe pain in her upper abdomen, and had had several bouts of vomiting. She was walking the floor, bent over in agony. There was no fever, though her pulse was accelerated. On physical examination little could be made out but rigidity of both recti muscles. If I had not had some inside information about this girl's history, I might have suspected a ruptured viscus; but I happened to know that she had just been forced to realize that a young man in whom she was very much interested had ceased to care for her. The resulting emotional storm upset her digestive function. Instead of sending for a surgeon, I let her pour out her troubles to me, and then sent her a bromide and belladonna mixture. Here, as the family physician, I had a great advantage over a stranger.

Case 2. A much more mature lady, perhaps in her late thirties, had purchased an excursion ticket to her old home in a neighboring state, but half an hour before time for the train to leave, suddenly lost the use of her left arm and leg. This paralysis was preceded by dizziness, nausea and vomiting. It lasted for several weeks, gradually clearing up with no residual symptoms.

For a diagnosis here I had to depend partly upon my own observations, partly upon a history obtained from a cousin. The patient was a little drab, anemic individual, artistic in her temperament—at least artistic enough to color portraits for a photographer. Her blood pressure had always been low, she had no evidence of arteriosclerosis, and her blood Wassermann was negative. From her cousin I learned that she had not been back to the old home for years—not, in fact, since she had a most unfortunate love experience there, and was jilted by her lover. She felt that it was her duty to visit her old mother, but dreaded the humiliation of being seen there, and shrank from reviving old memories. The paralysis, of course, was purely a functional one, and subconsciously provided a means of escape from her embarrassing situation. The paralysis cleared up rapidly after the expiration of the excursion ticket.

Case 3. A young business man, the president of a small manufacturing concern, was having a great deal of trouble with his digestion, with his

heart, and with his sleeping. After almost every meal he was nauseated and usually vomited. His heart action was persistently disturbed—the disturbance usually taking the form of extra-systoles varied occasionally by attacks of tachycardia. At times he would become quite dizzy and faint. It was almost impossible to put him to sleep with ordinary hypnotics, and after a restless night it was a great effort for him to get out of bed in the morning. Yet he was a perfect physical specimen—a former football player.

Here, as the honorary member of the family every family physician should be, I held the key to his condition. Reared as a sensitive, spoiled child and possessed of a highly artistic nature—there is much in common between an artist and a high-powered executive—he had inherited from his father a respectable fortune, and had staked virtually all of it on his business. The depression made hard sledding for him, a strike deprived him of the upturn that came when the NRA first began to function, and his business had reached a real crisis when his sales force failed to function. Several times before he had himself made trips to New York and other cities and always came back with a large batch of orders. It was plain that such a trip was facing him and that its success might determine the future of his business. He realized its importance, yet dreaded it horribly; and his symptoms were simply the physical manifestations of the terrific mental hazard he was endeavoring to overcome.

This young man was most intelligent and accepted without question this explanation of his symptoms. He won a moral victory by going to New York and landing enough orders to keep his plant going for several months.

Case 4. A young lady whose home was in a small town in another part of the state, while on a visit to her married sister here, had an acute attack of appendicitis and was promptly operated upon. Though she had a rather bright mind, she was made hideously ugly by acromegaly. The fact that her two sisters were unusually pretty, dainty, and popular girls made her own homeliness all the more keenly felt. While in the hospital she was made quite a pet by the nurses, and doubtless got more attention than she had ever known before.

About a year later, while visiting near her home, I was asked to see her in consultation with her family physician. She gave a history of abdominal pain almost exactly like that of appendicitis, but every physical finding was normal. When her attention was diverted, it was possible to press deeply into the abdomen, though when on guard the right rectus muscle was held rigid. It was evident that she was anxious for another operation.

Of course, it took no expert psychiatrist to tell the pathetic story that the poor girl was willing and anxious to undergo another laporatomy in order to be made the center of attention she had been after her appendectomy.

The emotional factor in the practice of medicine is also of importance as it concerns the physician himself. It is hard for a doctor to keep his own

emotions from interfering with his judgment. What doctor is not worth more to his patients in the early part of the day, after a good night's rest, than when jaded from the day's grind—especially if he had been out half the night before? And how hard it is not to be biased by a disagreeable patient or family! One soon learns to "sense" the atmosphere of the home and sickroom into which he enters, and to feel subconsciously the attitude of the patient and his family. It is hard indeed to do one's best in hostile surroundings, and far easier in friendly ones. I know of no better way to cultivate the right atmosphere than to remember the Scriptural injunction that "a man that hath friends must show himself friendly"—but it is often hard to do.

Osler, who, in addition to being a great clinician, knew perhaps better than any doctor who ever lived how to interpret our profession to its own members and to the world, advised a class of medical graduates to cultivate as of first importance the quality of imperturbability.[4] He defines this as "coolness and presence of mind under all circumstances, calmness under storm, clearness of judgment in moments of grave peril, immobility, impassiveness," and truly says that "it is the quality which is most appreciated by the laity though often misunderstood by them."

Osler further says in this address that imperturbability is largely a bodily endowment, and that its mental equivalent, which is just as important, is equanimity. Let me quote him further: "One of the first essentials in securing a good-natured equanimity is not to expect too much of the people amongst whom you dwell. 'Knowledge comes, but wisdom lingers,' and in matters medical the ordinary citizen of today has not one whit more sense than the old Romans, whom Lucian scourged for a credulity which made them fall easy victims to the quacks of the time. . . . Deal gently then with this deliciously credulous old human nature in which we work, and restrain your indignation when you . . . discover accidentally a case of Warner's Safe Cure in the bedroom of your best patient." If he were writing now, he would probably add, "or if your best patient goes to a chiropractor to have a spinal adjustment for a headache."

It is impossible, of course, to tell a doctor how to prevent emotional strain in the practice of medicine. It just can't be done, as long as one stays in active practice; and if one does not have enough to do to keep his hands full, he is apt to worry even more. As one of Oscar Wilde's characters has said, "There are only two great tragedies in life, not getting what you want—and getting it!" Whether a doctor fails to get the large practice he expects when he hangs out his shingle, or is so successful that he has no time he can call his own, in either event he must pay the price of emotional stress.

The best advice I can offer is that a doctor systematize his work insofar as the practice of medicine can be systematized. Regular office hours, with appointments made by an intelligent secretary; an afternoon a week out of the office for recreation; enough postgraduate work to keep his professional appetite whetted; and the cultivation of a hobby are all

of great advantage. When one finds himself growing stale, it is time to take a few days' vacation from the telephone and office. When one's practice grows too heavy, he need not specialize unless he wants to, but he can slough off one branch after another until he is doing what he likes best—and consequently doing better work than when attempting to do much that was drudgery.

SUMMARY

1. Within comparatively modern times the emotional factor in the practice of medicine has received much attention.

2. The emotions affect most often the digestive tract, with the circulation of next importance.

3. The menorrhagia of young girls may be explained on an emotional basis.

4. The treatment of the neuroses is made harder because they represent the subconscious wish to escape the realities of life.

5. Four case reports are given.

6. The emotional factor is of importance as it concerns the physician himself.

REFERENCES

1. Leland and Simons: The Annals of the American Academy of Political and Social Science.

2. Alvarez, W. C.: "Nervous Indigestion," Hoeber, 1930, p. vii of preface.

3. Stephen, Karin: "Psychoanalysis and Medicine," Cambridge Press, 1933, p. 150.

4. Osler, Sir William: "Aequinimatas and Other Addresses," pp. 4-6.

DISCUSSION

Chairman Shelburne: Discussion on this very interesting paper will be opened by Dr. Fred Hanes of Durham.

Dr. Fred M. Hanes (Durham): Mr. Chairman, and Gentlemen: Dr. Johnson's delightful and interesting style may have concealed from you the fact that he has put his finger on a very sore spot in the practice of medicine and that is—if I may be brutally frank—the almost universal ignorance in appreciation of the central nervous system in the causation and indeed the continuation of disease. The result has been a thing that we doctors complain of very bitterly: the development of quackery. I feel sure that the faith-healer and the chiropractor and the Christian Scientist could never have existed and cannot exist now if we as doctors had been taught and if we had practiced what we should in regard to the role of the central nervous system in disease.

I don't blame ourselves. I blame our teachers. I think you will bear me out in the statement that the teaching of diseases of the central nervous system in your curriculum—certainly in mine—was the most poorly taught, the least emphasized of all the parts of internal medicine. We can't be blamed then for the fact that we were sent from medical school

with such an inadequate training. How can we be blamed if our interest does not follow the subject in which we were not properly trained? I hope that our modern medical school teaching has stopped this and that we are bringing back into the consciousness of the general practitioner—where it should be first of all—a thorough knowledge of both the organic and the functional nervous diseases.

My time is too limited to attempt anything like a discussion of the psychoneuroses. I want to point out just briefly though, how important this paper of Dr. Johnson's is in relation to the common everyday things that we as doctors are seeing all the time. Let us take the commonest condition probably that we see—constipation. There are many doctors who believe there is a disease called constipation. It is because this belief is so prevalent that constipation is so prevalent. I firmly believe if we should set a figure that above 90 per cent of all constipation could be labelled carelessness, laziness and ignorance—and I wouldn't limit it always to the patient when I use those three terms (laughter and applause) that would not be far from the truth. If the patient believes that there is such a disease as constipation he is going to be constipated. From childhood on, his nurse and mother have talked to him about it. The fear is firmly lodged in his mind that this dread disease constipation has fallen upon him and that nothing in the world but laxatives will cure him. I was told just a night or two ago of a patient that illustrates perfectly a point I want to make in relation to constipation. A gentleman had developed a habit of brushing his teeth, and immediately after he brushed his teeth he went to the toilet. He had his teeth pulled. (Laughter) This is not an imaginary story. He became extremely constipated but in due time he received his set of false teeth. Then he adopted the habit of brushing his false teeth—when again he was not constipated. That is a perfect example, as you will recognize, of conditioned reflex and I wonder if the things we tell patients to do in constipation—drinking two glasses of cold water, putting a little glycerine and salt in water—all the little maneuvers one or the other doctor uses and recommends to his patients—I wonder if it isn't a conditioned reflex, and if you can't cure the patient, provided you tell him in the beginning, there is no such thing as constipation, and he believes you.

Auto-intoxication is a sort of corollary to constipation. There are human beings who still believe there is a disease called auto-intoxication. I am not one of them and if you will consult an authority such as Alvarez I think you will find he will tell you that not one shred of scientific evidence has ever been produced to show that there is a disease such as auto-intoxication. Again it is very easy for a patient to believe there is such a disease and attached to it there is a series of emotional symptoms that can incapacitate the patient. The doctor referred to focal infection. About ten years ago with the rashness of youth I read a paper in which I pointed out that the panacea that was being offered us, called focal infection, was probably fallacious. It has taken ten years for that rather

trivial observation to be proven. I think that today we realize that the catchword, focal infection, is fraught with the gravest danger, that it is nothing like the panacea we believed it to be, that indeed the sacrifice of teeth and tonsils and operations of various kinds that have been made in the name of focal infection have been largely wasted efforts. I wouldn't say that no such thing exists but I think it requires extreme caution and discrimination before such a diagnosis is made and I am sure that many patients' lives and health have been wrecked by the words "focal infection," which they have attached to these emotional ideas and diseases that Dr. Johnson has brought before us.

Finally, if I have a moment, I will just speak about one more thing. Only a few years ago it required a bold man to write a paper on arthritis. It was the one disease we all shied away from. I know of nothing that caused us more distress than to see a case of rheumatoid arthritis with limping arms and knees coming into the office. Scarcely a medical journal today does not have one or two articles about arthritis. I notice my colleague, Dr. Smith, had the temerity to read you a paper on that subject today. I wonder what has happened to arthritis. If you go to Boston you find that they have discarded nearly all methods of treatment except hygiene. If you come down to New York you find infection; streptococcus mitior is causing the disease and vaccines are working cures. You come to Philadelphia—diet must be used and most meticulously and specifically used if one would cure their cases and they are being cured.

Now you come to the newest catchword in medicine, hyper-pyrexia, to increase a patient's fever artificially; and I am going to state that I think that it helps arthritis. (Laughter) But I don't know whether it helps the functional side of arthritis or whether it helps the organic side, because of all the diseases known to medicine the functional emotional element plays the largest role in arthritis. That is why in Boston, New York and Philadelphia, and probably in Durham, we have patients with arthritis who are greatly benefited—it has been said that 25 per cent improvement represents heaven to the arthritic. Let us be very careful now in our judgment of arthritis and the treatments that are coming out, that that 25 per cent we are curing isn't the emotional element, isn't the functional element. I read reports—and you do too—daily, of cures of arthritis, or rheumatoid arthritis. I love to read them. I am glad to believe it but behind it all I have the rather sickening fear that here again a catchword has got us, and we are doing as we have so often done before in medicine, accepting the relief of the functional element for the cure objective.

I must say that I think this paper of Dr. Johnson's, with all the lightness of treatment, is an extremely important paper and I think we should all carry it with us, carry it home and cogitate the thought that we are treating a patient; we are treating a patient with all the eccentricities and aberrations of a patient's mind and nervous system, and rarely are we able to treat a pure disease. I think it is wise for us always to look for

the functional element in disease, because unfortunately in a great many diseases that is going to be the only element which we are able to cure. (Applause)

CHAIRMAN SHELBURNE: Is there any further discussion?

DR. F. R. TAYLOR (High Point): I don't want to do all the talking here but I think this paper and the discussion we have had ought not to be allowed to go by without further expression of appreciation.

I want to say that I had thought I would like to kill any man that I heard read a paper at either a county or district meeting and then read it again at a state meeting. I want to publicly retract that thought. I heard Dr. Johnson read that paper at our last district meeting, and it is so good that it ought to be read twice and possibly thrice.

I do believe that there is such a thing as a symptom, not a disease, viz., spastic constipation. I think most of our constipation is spastic and of nervous origin. It is very often due to chronic emotional states.

Like Dr. Johnson, I am something of a hero-worshipper in medicine and we share this in common: that Alvarez is one of our heroes. I look on his work as perhaps the best in gastroenterology that I know of anywhere.

However, there is one statement Alvarez makes that, from my own small experience, I do not concur in. He states that though it is often blamed as a cause of many functional nervous disturbances he finds that eyestrain does not play a large part. Personally, I think it does.

Recently, through a cross-reference diagnostic index that I have, I analyzed about twenty-three hundred diagnoses of patients seen mostly in office practice, and the commonest single diagnosis that I had there was refractive error that was not properly corrected. I think that Snellen's test type and an astigmatic chart should be part of the equipment of every man who does any form of general diagnostic work in medicine.

I don't think that getting a pair of glasses will remove chronic emotional strain, financial worries, and that kind of thing, but I do think that oftentimes it is simply that additional hazard that is the last straw that break's the camel's back.

We haven't the resources of a Rockefeller to cure our patients by giving them five to fifty thousand dollars (if that is a cause or the major cause) but there is a minor cause there of eyestrain that is putting that nervous system on edge and making it more susceptible to the things that we can't help. I think we should correct the eyestrain, for a number of our patients will be benefited.

The idea exists that these functional neuroses are never dangerous. I want to cite a case that I saw recently that would quite negate that. It was, it is true, on the basis of an underlying condition, but the precipitating cause of the attack was an emotional stress. I was called to see a man who was lying in bed reading quietly prior to going to sleep. He had gone to bed early one night and all of a sudden he went blind and became

half-conscious. By the time I got there he had recovered from this condition but he had gotten numb all over and it was fairly evident that he had some kind of vascular spasm in his brain. His blood pressure was up to 180. He was not an old man at all. And he seemed to be in a rather dangerous state.

I gave him some nitrites. The next day his blood pressure was all right and he felt perfectly well.

I learned that a man with whom he owned a little property in common had suggested having a certain line surveyed. He had told him he would get somebody to survey it and it would only cost him ten or fifteen dollars —that it would cost them that together—so he said, "Go ahead, get the surveyor to survey that line."

They got a bill from the surveyor for sixty-five dollars, with the result that he pretty nearly had a stroke of apoplexy. (Laughter)

CHAIRMAN SHELBURNE: Is there further discussion?

DR. JOHNSON (Asheville): I can't refrain from saying a few words about this paper. I think it is a most excellent and delightful treatment of a most important subject.

Dr. Johnson quoted quite freely from the works of Dr. Alvarez; having worked with this gentleman off and on for seven years this subject is naturally very dear to me. I think as time goes on we should devote more and more time to the discussion of this particular subject. Many of you who were here this morning remember the figures which Dr. Miller quoted on the admission percentages of the cases in his gastro-intestinal clinic. As I remember those figures they are somewhat as follows: about 30 per cent of his cases had gall-bladder disease; another 30 per cent had either duodenal or gastric ulcer; the third large group in his group of several thousand cases was functional gastric disease and I think the percentage was in the neighborhood of 18 per cent.

I am perfectly convinced that those figures were absolutely correct in so far as Dr. Miller's experience in a large gastro-intestinal clinic is concerned, but certainly they don't mirror what we see in private practice. I think the figures probably should be just about reversed and functional disease certainly should occupy the first importance, perhaps 50 or 60 or 70, even more percentage—with gall bladder disease, duodenal and gastric ulcer coming in as a poor second.

Dr. Johnson and Dr. Hanes have both cited several rather interesting and delightful examples of the effect of emotions upon the various functions of the body. In all of these cases the connection between the emotional debauch and the symptoms was rather clear-cut. Unfortunately most of our cases have as the cause of their symptoms chronic psychic trauma, worry about finances, marital difficulties, children not getting along as they should, and one thing or another. It takes a tremendous amount of time and effort and sympathy and tact to get anywhere with these people, to find out what the ultimate cause of their symptoms may

be, and the only way to do it is to spend literally hours and days with them, trying to work out their problems. Only by so doing are you able to get anywhere because you must capture first the confidence of these people and then you can gradually work out of the hole.

For these reasons I was extremely gratified at Dr. Johnson's presentation and I sincerely hope that in succeeding annual meetings of this group there will be more papers and more discussions of this most important subject.

CHAIRMAN SHELBURNE: The next paper to be presented is, "Endocrinology and Uterine Bleeding," by Dr. Millard D. Hill, of Raleigh. (Applause)

ENDOCRINOLOGY AND UTERINE BLEEDING

By MILLARD D. HILL, M.D., Raleigh, N. C.

There is no single symptom in the realm of gynecology that has presented more perplexing problems to the gynecologist and practitioner than abnormal uterine bleeding. As a rule, no two cases present the same history and physical findings, and there is no place in the entire field of medicine which requires a more painstaking history and physical examination, with a careful correlation and evaluation of the facts. Also keeping constantly in mind that the majority of menstrual disorders are due to some uterine or adnexal anatomical lesion, leaving a much smaller number to be placed in the endocrine group. The latter according to Rowe's findings having a primary disturbance in more than one gland is a rare condition, in the study of one thousand endocrinopathies, he found only two or three cases.

As a general rule in all cases, some preliminary treatment is required, such as well regulated exercise, a diet of proper caloric value, and balanced vitamin content. Focal infections, anemias and abnormal metabolic rates, all should be corrected, and in a large percentage of cases will correct the menstrual disorders. When pelvic pathology is found, it should be handled conservatively, unless it has proved malignant, but always removing the pathology as far as possible by conservative means. When organic trouble is ruled out, and a diagnosis of functional uterine bleeding is made, and even when the diagnosis is correct, many practitioners will prescribe ergot, or similar drugs. Ergot is a very good drug in cases of uterine hemorrhage, caused by relaxation of the uterine musculature, but has no hemostatic effect in other cases of uterine bleeding, and should not be used. The treatment of all cases of functional uterine bleeding in married women or women who have borne children, a diagnostic curettage should be done, and the scrapings examined by a competent pathologist, to rule out malignancy. If the findings are essentially negative, the patient should be started on anterior pituitary sex hormone, the dosage being from 100 to 200 rat units daily, depending entirely upon the patient's progress, but if hemorrhage is profuse, patient should be kept in bed,

and this continued for seven or eight injections, unless hemorrhage is corrected. In cases which the patient continues to bleed, and becomes exsanguinated, an immediate transfusion should be done. The amount of blood should depend entirely upon the patient's condition. When this condition is corrected, the patient should receive five or six injections of anterior pituitary sex hormone, one every other day beginning approximately ten days before expectation of menstrual period. This treatment should be instituted each month for a period of several months. Under ordinary conditions many cases will be corrected by the above mentioned treatment, if the diagnosis is correct to begin with.

In the event malignancy is found, immediate radiation should be instituted, for malignancy of the uterus is only curable when it presents one symptom, that of bleeding between catamenias, but when disease presents itself with pain, and a discharge which has a foul odor, malignancy has probably reached a hopeless stage. Bleeding in all cases after the patient has passed through the menopause should be considered malignant, until proven otherwise.

There are cases of amenorrhea and menorrhagia, of all ages during the menstrual life that present themselves with troublesome vasomotor symptoms, with very severe headaches, which respond very poorly to any type of medication. Those cases of menorrhagia after five or six injections of anterior pituitary sex hormone that show no improvement should be treated by radiation in very small doses, the smallest amount being given that will correct the flow. Those cases of amenorrhea will respond so far as symptoms are concerned, better with follicular hormone, but this drug has to be used in large quantities to derive very much benefit. In most cases as much as thirty injections of from 50 to 100 units daily has to be given to receive any pronounced effects, and when drug is suspended, there is usually a gradual relapse within the next few months. In many of these cases of amenorrhea with a normal metabolism that have a tendency to obesity, small doses of thyroid given along with other treatment aleviates the symptoms more quickly. Amenorrhea of eight to twelve months duration is infrequently corrected by any available treatment to the extent of a normal menstrual cycle. Oligo menorrhea responds more favorably to medication than amenorrhea, but many of these cases usually show an unfavorable prognosis.

The writer's experience with ovarian preparations given orally or hypodermically have proved practically inert, and he is of the opinion that the preparations being manufactured from animals with an entirely different generative and menstrual cycle are unable to unite with the deficiency in the human body, due to the wide range of differences when they are functioning normal in their respective places. The stride forward in the last few years of endocrinology has been more pronounced, since several preparations on the market have been manufactured from secretions of the human body, and will be greatly facilitated when more preparations for different glandular defects are produced from the same sources. No

field of medicine has suffered more from experimental medication than abnormal uterine bleeding, nor has any field had as many different drugs marketed by high pressure salesmen, with very promising reports from the manufacturers' laboratories, which after being put through the clinical test proved practically worthless.

REFERENCES

Mazer-Goldstein Clin. Endocrinology of Female.

Richardson, Edward H., Internat. Clin. 2; 163, 1933.

Tice Medicine (reprints).

DISCUSSION

Dr. R. B. Davis (Greensboro): Mr. Chairman, if a guilty surgeon may be allowed to address an honest medical group I should like to make a couple of observations about endocrinology and the uterus.

About two months ago a lady was sent in to me with a history of vomiting for a week before each menstrual period. The woman was sent in for a chronic appendix. When I opened her abdomen, which I did with a midline incision, I found the ovaries sclerotic. The woman was only 22 years old.

Believing that perhaps the same phenomena that made that woman vomit made the pregnant woman vomit, and seeing how tough the covering to the capsule of the ovary was, I stripped the covering of the ovaries for about half of their circumference.

If a patient vomits after pregnancy because of the lack of corpus luteum being turned loose, then why not in those cases that have had infection—and this woman had had pelvic infection—why not in those cases with infection of the ovaries in which the capsule is so tough that the corpus luteum is so long becoming ruptured that she begins to vomit?

I had another interesting case, a patient who had insomnia for a week before menstruation. This patient received two injections of.....?....., after which she slept fairly normally and restfully, then began menstruating without any dysmenorrhea which she had had previously, associated with her insomnia.

Those are interesting observations, I think, that do not prove anything but are made in the hope that more of us may study this monthly visitation of the fairer sex, because I think it is up to us to do more in the future than we have in the past for these people.

Chairman Shelburne: The next paper is by Dr. P. W. Flagge, of High Point, the title of which is, "Review of Five Hundred Electrocardiograms."

A REVIEW OF FIVE HUNDRED ELECTROCARDIOGRAMS

By Dr. P. W. Flagge, High Point

"In 1903, Einthoven introduced his new instrument, the string galvanometer. The facility and precision with which this instrument may be employed is such that it has rapidly superseded other forms of sensitive galvanometers. It is an instrument which is used as a routine in recording the heart beats in experimental research, and has brought the systematic electrical examination of patients within the field of practical medicine." So wrote Sir Thomas Lewis in 1924. The truth of a statement from so great an authority needs no emphasis. In medicine we readily turn to the graphic method of study. This is well illustrated in the many charts and forms found in the ordinary bedside record. Today practically every kinetic function of the body is recorded on some form of graphic chart. Probably the latest addition to this form of registration is the electrographic registration of the abnormalities of the human gait, "electrobasography."

Electrocardiography has its appeal to the clinician because (1) it helps the memory and gives a picture of the revolutions of the cardiac motor; (2) electrocardiography furnishes one of the best methods of early recognition of degenerative changes in the heart in late middle life; (3) it is the only means of correct prognosis in the arrythmias; (4) it is a therapeutic control in digitalis therapy.

The subject matter of the following review is that of five hundred electrocardiograms taken in the course of routine examinations over a period of fifty-four months in a small institution, and of cases referred for grams. The classification is based upon electrocardiographic changes solely without regard to group diseases of the heart. It is presented with the idea of impressing the frequency with which the electrocardiogram registers, explains, and confirms clinical findings.

THE ARRYTHMIAS

Arrythmias arise from a disturbance in the orderly sequence of the heart beat. It is not so important in itself as in the fact that the heart beat induced has an abnormal origin. In many instances it may be possible to recognize the clinical type without the electrocardiogram, but even the shrewdest clinician may be compelled to change his diagnosis when confronted with an electrocardiogram. In addition there may be an associated graphic pathology covered by the arrythmia.

"Sinus arrythmia is rarely of clinical significance unless associated with sinoauricular block, sudden temporary cessation of the heart action or periods of very slow heart." With the exception of acute inflammatory involvement of the sinus they are for the most part extracardiac and should cause no anxiety." Their treatment should consist of the treatment of the condition producing the arrythmia and not the heart itself. Premature beats are frequent causes of arrythmia. If they indicate nothing

more they point to an area of irritability of the heart muscle. But Lewis found 71% of a series of 121 cases with definite heart disease, and Pardee in a series of 50 cases found the percentage of definite heart disease to be 84. Before premature beats are dismissed as of no clinical significance it must be remembered that they represent wasted energy. As long as the heart muscle is strong little notice is taken of them by the patient, but when the muscle begins to weaken their importance is in direct proportion to their numerical recurrence. It is possible that they may be the first indication of arteriosclerosis in an area supplied by a small vessel. Probably only when there is no other evidence of heart disease is it permissible to attribute them to nervous influence. In the presence of acute inflammatory conditions they may indicate the invasion of the heart muscle and as such be the precursor of degenerative changes.

There are 72 electrocardiograms showing arrythmia unassociated with auricular fibrillation. Fifty-five of these showed premature ventricular beats. Inversion of T-1 and T-2 occurred in five, and T-2 and T-3 in four. Nine were associated with bradycardia. Three were known to have mitral stenosis. Complete auriculoventricular block was noted twice. It was seen once in connection with diabetes and once in a choreic patient. The youngest of this group was seven years. Nine deaths of cardiac origin are recorded in the group.

AURICULAR FIBRILLATION

Whatever the origin of this condition when once established it has a tendency to become chronic. When early diagnosed the probability of reëstablishing a normal rhythm is greater than after long duration. However, even fibrillation of long standing may be converted into normal rhythm. It should be borne in mind that the change is not without its hazards. When it is permanently established, and it is determined that no attempt of change is advisable, it becomes necessary to hold the rate down to as nearly normal as possible. This conserves the heart muscle and increases the expectancy.

Fibrillation occurred in this series nineteen times. Twelve of the number are known to be dead. All of those living are reduced to limited activities. Inverted T-1 and T-2 were associated in two and T-2 and T-3 in one.

BUNDLEBRANCH BLOCK

Seventeen electrocardiograms showed this change. The two types are considered together. The average age of the group at the time of record was 51 years. The youngest at death was fifty years. This condition was associated with prolonged PR interval in three instances. The three showing this defect are dead.

TACHYCARDIA

Various conditions may cause tachycardia. It is of short or long duration depending upon the source of its origin. When it exists for a long

period of time, or recurs frequently, an effort should be made to determine the cause. Electrocardiograms of this type are frequently associated with cardiac and extracardiac disease. Forty-five are enumerated in this group with a rate of 120 or over. Of this number 30 were females and 15 males—the youngest, an infant of six weeks, and the oldest, a woman of 74, with a mediastinal tumor. Nine were associated with definite thyroid disease.

BRADYCARDIA

Although this condition is consistent with perfect health it is relatively more frequently associated with demonstrable cardiac disease. It is sometimes found in athletes, at times in the aged due to deficient blood supply to the heart muscle. Forty-one electrocardiograms showed a rate of sixty or less. It is interesting to note that 15 of the number were limited in their activities. It was four times associated with inverted T-2 and T-3; three times with angina; twice each with bundlebranch block, low voltage, and auricular fibrillation. The youngest was a boy of 16 years with articular rheumatism. It was found once in a boy of 18 years otherwise in good health. He was rejected in an army examination on this defect alone, but later admitted. A girl of 18 years showed this type associated with a nodal rhythm. This last case and the one with auricular rheumatism were each dyspneic on effort.

LOW VOLTAGE

For the past years low voltage has come in for much attention by many observers. There is a growing tendency to attach increasing significance to this finding. Hepburn holds that it is always indicative of fatal prognosis. Speckman found it in 2,000 cases, all of them belonging to the laboring class. Forty-eight had heart symptoms. Arteriosclerosis was present in 30 and 16 suffered hypertension. In 19 of the 40 low voltage was the only symptom of cardiac pathology. His group showed a mortality of 84% within an average of ten and one-half months. Stuerer reports 50 cases with electrocardiograms of low voltage and autopsy in each case. 67% had coronary sclerosis, and 24% had acute or chronic infections. From these observations it would seem that low voltage offers a very poor prognosis. Whatever the underlying pathology there is a tendency to curtail the efficiency of those suffering from this condition. In our own group the sex occurrence was almost equal—21 males and 20 females. The average age for the group was 57 years. Eleven of the number are dead within the five-year period, the average at death being 56 years. Heart disease is entered one time only as the principal cause of death. Fourteen of the living are limited in their activities. It was associated five times with premature ventricular beats, five times with auricular fibrillation, and once with inverted T-2 and T-3.

INVERTED T WAVES

For many years changes in the T wave has been associated with coronary disease. Difficulty in finding this change is seemingly due to failure

to begin promptly and continue in the search frequently over sufficient time. In the early stages of thrombosis there is a tendency for the wave to take the form of the "cove" T. Perhaps 90% will show typically diagnostic changes if examined with care and persistence. The relation of the negative T wave to coronary disease was established by Smith in 1918. Parkinson classifies the RST changes into T-1 and T-3 types. We are now reasonably sure that in the future more accurate localization of disease in the ventricle muscle will be possible. When associated with other cardiovascular disease T-wave abnormality adds considerably to the gravity of the prognosis. The negative T-1 and T-2 are more significant than T-2 and T-3. Recently T-4 has been added to the findings in coronary disease.

This study numbered 23 electrocardiograms showing inversion of T-1 and T-2, and 14 showing inversion T-2 and T-3. The average age for the first group at the time of the record was 39 years. The youngest in the group was 20 years. Nine of the number are dead. Seven of the nine were known to have anginal attacks during life. The second group numbered fourteen. The average age was 51 years. The youngest of the group was 14 years of age. Six deaths are recorded in this group.

DEEP Q3 WAVE

Pardee associates this complex with coronary disease. Subsequent analyses confirm his observations. Eidekin did not find the deep Q3 wave in 709 normal, healthy students. In 500 students with cardiovascular disease it was found in 6% of the examinations. In 300 cases Willius found deep Q3 associated with angina in 38% and with hypertension in 51% of the examinations.

In our own study the typical electrocardiogram is found 59 times. The average age was 53 years. The oldest was 83 and the youngest 16 years. Of the number 16 are known to be dead. It was associated 24 times with hypertensive disease and 20 times with angina. Ten of the number were obese. Of the living 18 are restricted in their activities for their age-group. It was found 17 times in business men and women carrying an average or more than average responsibilities. Forty-two of the entire number came for examination with symptoms directly referable to the heart.

CONCLUSIONS

The study has revealed 317 instances of major pathological electrocardiographical changes in the five hundred records. Taken in a series of cases the electrocardiogram registers a volume of pathology seldom equaled in a single diagnostic procedure.

DISCUSSION

Dr. J. T. Taylor (Greensboro): I noticed that in the four and a third years that he has used his machine he has only apparently found occasion to use it 500 times. I think that is running very conservatively and it shows

that Dr. Flagge is selecting the cases in which he uses the electrocardiogram.

In the 500 grams that he has taken he has found 331 positive pathological conditions as demonstrated with the electrocardiogram.

I think that the electrocardiogram has come into its own. There are few of us that know very much about it. None of us are able to say that we know all about it. I don't think it is perfect by a long way but I think the electrocardiogram is the same thing to the cardiologist as the basal metabolism is to the thyroid surgeon or the X-ray to the respiratory man or the gastroenterologist. I think its place in medicine is just as well established as many of the other accessory diagnostic methods used in medicine.

Dr. Flagge has shown us on the screen various changes that take place in various cardiac conditions, and I am going to stress some conditions that I think the electrocardiogram gives us a sure footing in. I may be criticized by many of you but, nevertheless, here I go.

I think it is very helpful in the degenerative heart conditions—I am omitting the arrythmias, which we can all pick up with the finger on the pulse or the scope of the chest. Of course, that is a degenerative heart condition. But the branch blocks, blockage through the conductive system, many times we cannot pick up; we cannot determine which branch is blocked, what the damage is, where to look for the damage, or what our clinical symptoms should be, without the use of the electrocardiogram.

So much for the conduction system.

As for the muscular system of the heart, I don't believe every vessel in the heart muscle is by any means an end artery. I think that there is just as much chance of anastamosis and collateral circulation being established in the heart muscle as there is in most any muscle of the body. Certainly, our first symptoms of sclerotic conditions, thrombotic conditions, in the heart muscle—so-called coronary heart disease—are in the smaller vessels of the heart.

When a man comes to us with pain in his chest, a substernal pain, with probably a little pain radiating to the shoulder, either right or left, or to the back, wherever it may be, we are disposed as physicians to throw up our hands in holy horror and condemn that man as a hopeless heart case. The average advice of the physician to that man, until he determines thoroughly the condition of that heart muscle—and there are conditions of that heart muscle in which I don't think our advice to the man can be any too strenuous—our ordinary advice to the average business man, the man who is living and has been living under the stress and strain of the past five years who comes to us with a substernal pain, I think, does that man more harm ordinarily than good. It makes more invalids than we would have otherwise, and simply prolongs the lives of those invalids. Personally, I would rather have a short and active life than a long, invalid life.

If I may cite a case, only yesterday morning a woman brought her husband to me. He had been treated here and yonder for a cardiac condition for the past two years. He had been kept in bed as long as six months at a time. Every question I asked that man pertaining to a cardiac symptom he answered me in the affirmative. I went into a thorough examination with him, in every way that I knew. I gave him the cardiac test. I ran him up and down stairs. I gave him the bending exercises, the knee exercises. I gave him blood pressure tests, and everything else that I could use, and there was absolutely no abnormality about that man. I did an electrocardiogram on him and it showed an absolutely perfect normal tracing.

Twenty-four hours later I saw him and talked to him and his wife and I told him that I absolutely could not find anything wrong with his heart. His reply was, "Doctor, I believe I am perfectly well right now." He said, "I feel better today than I have felt in two years."

I am confident that that man probably had a little bit of a blockage there of a small vessel, that he had some pain, and was poorly advised and poorly taken care of.

I think the use of the electrocardiogram in such cases as that is very desirable and very necessary. I think that without electrocardiographic studies you cannot determine the condition of your heart muscles and your conduction system.

I think the psychological effect of the electrocardiogram on your patient, the patient knowing that you are going to establish any factors it is possible to establish in relation to his heart condition, is certainly justifiable.

Dr. Flagge has covered the ground thoroughly and I have nothing further to say.

Chairman Shelburne: The next paper is by Dr. S. F. Ravenel, of Greensboro, on "Rocky Mountain Spotted Fever."

ROCKY MOUNTAIN SPOTTED FEVER

By Samuel F. Ravenel, M.D., Greensboro, N. C.

The typhus-like fevers which may be encountered in the United States are as follows:

1. Epidemic (European) typhus.
2. Tabardillo or Mexican typhus.
3. Endemic typhus or Brill's disease.
4. Rocky Mountain spotted fever.
   (a) Western.
   (b) Eastern.

Epidemic (European) Typhus:

This disease was first differentiated from typhoid by Gerhard in 1836. Epidemics decimated the maritime cities of the United States during the

19th century—the last one devastating New York City in 1892-93. It is a disease of high communicability and mortality, of cold and temperate zones, occurring principally in winter and spring, associated with filth and overcrowding and transmitted from man to man by the body louse. It was introduced into the United States by infected immigrants. Modern quarantine procedures are so effective that it is now rarely seen in the United States and then only in quarantine stations.

Tabardillo is the louse borne typhus of Mexico. It either was indigenous there or was introduced at the time of the Spanish conquest. From time to time it has been imported into the United States by infected travellers, causing localized outbreaks with high mortality (New Mexico, California, Iowa).

Endemic Typhus is the mild form coming more and more to be called Brill's disease. Observed first by Brill in New York City in 1897, and accurately described by him in 1910, it has since been noted by various observers from New England to Mexico along the Atlantic coast.

In 1926 Maxey by epidemiological studies indicated that this disease was not louse borne and suggested a rodent reservoir with accidental transmission to man by some blood sucking ectoparasite of the rat. In spite of this until 1930 there was much confusion in regard to the vector of endemic typhus with many insects and arachnids suspected—the chigger, body and head louse, mosquito, bed bug, tick, etc. It is now known that much of this uncertainty was due to the fact that two distinct diseases were being confused—typhus and Rocky Mountain spotted fever. Dyer, Rumreich, and Badger came to be impressed by the fact that cases of a disease were occurring along the eastern coast giving a positive Weil-Felix reaction and regarded as Brill's disease which did not fit the epidemiological pattern of typhus. Furthermore the clinical picture and severity differed from that of typhus and resembled Rocky Mountain spotted fever. That this was more than a similarity they showed by a series of brilliant animal inoculations and cross immunity experiments the results of which, published in 1931, were accepted as conclusively proving the existence of spotted fever in the east.

Rocky Mountain Spotted Fever, western:

Historical: The Indians are said to have shunned the infected valleys long before the advent of the whites because "evil spirits dwelt there." The virulent spotted fever of Montana was described by Coughenour in 1885 and the mild Idaho form by Wood in 1896. However it was not until 1899 that Maxey published the first clear clinical study of the western disease.

Nomenclature: At first called "Black Measles," "Spotted Fever," or "Tick Fever," it came generally to be designated Rocky Mountain spotted fever because of its supposed geographic limitations. Although it has been described in Maryland by Shipley as "Tick Bite Fever," the original designation is probably best as it may yet prove to be transmitted by

vectors other than the tick. (Typhus, originally thought to be transmitted only by the louse, is now known to be carried also by the rat flea, rat mite and possibly the bed bug.)

The western spotted fever is found throughout the Rocky Mountain area. There is a mild form with a mortality of about 5% seen especially in Idaho, and a severe form with a mortality of 70 to 95% endemic in several Montana valleys—notably the Bitter Root valley. It is a typhus-like fever with a morbilliform exanthem appearing from the third to the eighth day, becoming purpuric and occasionally gangrenous as the malady progresses. It is caused by infection with a rickettsia inoculated into man during the bite of the western wood tick, D. andersoni. The disease confers an absolute immunity. The virus is hereditary in the tick but known animal reservoirs are ground squirrels, jack rabbits, dogs, meadow mice, deer mice, etc.

Rocky Mountain Spotted Fever, eastern:

In the literature of the past two decades are reports of what were unmistakably cases of this disease. It has probably been present east of the Appalachian mountains for 20 or 30 years. The early cases were usually and still are to a certain extent diagnosed typhoid fever, black measles, meningitis. It was not until 1930, however, that Dyer, Rumreich, and Badger *proved* its existence in the east. Since then it has been described in New York, Pennsylvania, Delaware, New Jersey, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Georgia, and Tennessee.

Vector: In the east the most common tick is the ordinary American wood (dog) tick—D. variabilis (D. andersoni is not found in the east.) However several species of ticks may distribute the virus to lower animals. A comparison between the millions of ticks in the woods and fields of North Carolina and the small number of reported cases of spotted fever seem to indicate:

1. A low rate of infection in the ticks,
2. That few people are actually bitten,
3. That the disease exists in mild form,
4. That it is not recognized by physicians.

It is probable that all of these factors operate to a certain extent.

In this vicinity ticks hibernate from about November to March, when they appear in large numbers in the woods and fields.

Life Cycle of the Tick: Spotted fever in humans is one of nature's accidents because ticks are not primarily a parasite of man. The female adult attaches to a host animal and feeds to engorgement (5 or 6 hours). There is a peculiar anesthetic quality to the tick bite which causes it to be painless. She then drops to the ground, lays about a thousand eggs, and perishes. These eggs or a small number of them hatch into six-legged larvae which promptly climb small stalks of grass or weeds and lie in wait for a small host animal. After attaching to the host they feed to engorge-

ment, drop to the ground and molt into eight-legged nymphs. These in turn repeat the process the next season or thereafter, using a larger host, and become adults. A feed of blood is necessary in each stage of the cycle and if this is not forthcoming the tick remains in the same stage for another year. For this reason the life cycle may last 2, 3, or 4 years. It is quite unusual for the tick to attach to more than one host in each stage, so in order to perpetuate the virus or transmit it to man, the infection must be received by the tick, retained through the egg and transmitted in subsequent stages.

Animal reservoirs are not necessary as the virus is transmitted from one generation of ticks to another but it is known that animals such as mice, squirrels, rabbits, dogs contract the disease. In the case of dogs they are not made ill and are infectious for only about one week. Incidentally it may be said that the virus would seem in no way to harm the tick. Occasional cases in man arise from crushing engorged ticks in removing them from domestic animals. The virus *may* be transmitted through the unbroken skin.

These arthropods deserve more attention from the sanitarian than they receive as they transmit a greater variety of diseases to fowls, animals and man than any other insect—notably Rocky Mountain spotted fever, African tick bite fever, African relapsing fever, tularemia, tick paralysis, mountain fever, heart water fever of cattle and sheep, biliary fever of dogs, etc. Fortunately in man these diseases prevail to a limited extent only due to the life habits of the tick.

Virus: The virus is now generally conceded to be one of the rickettsias, R. dermacentroxenus. These curious organisms are small coccoid or bacillus-like bodies which may be intra or extra-cellular. Some varieties, e.g., those of psittacosis and those of heart water fever in cattle, are filterable, but most of them are not filter passers. They are gram negative and stain best in tissue with Giemsa's mixture. Only two varieties have been grown in cultures—R. orientalis of Japanese red bug fever and R. prowazeckii of typhus.

Experimental Rocky Mountain Spotted Fever in Animals: Guinea pigs, rabbits, and monkeys are easily infected by inoculation with (a) the blood or spleen emulsion of animals, (b) the blood of humans suffering with the disease, (c) the emulsion of infected ticks or by the bite of infected ticks. The blood of animals is infectious until the 16th day and of humans until the 10th day of the disease. Such infected animals show a characteristic incubation period, temperature curve and clinical picture and in the case of rabbits and monkeys give a positive Weil-Felix reaction. Animals recovered from the eastern disease are immune to the virus of endemic typhus and the reverse of this is also true. By this means one may accurately distinguish between spotted fever and endemic typhus—a matter of some difficulty on clinical grounds alone. Rickettsiae may be found with difficulty in the omental clasmatocytes of these animals but specific focal lesions are usually easily demonstrable in the brain.

Endemic Typhus (Brill's Disease) is an urban disease common in seaports but also carried inland along lines of communication, both rail and water. It occurs usually in late summer and fall and is much more frequent in men than in women, probably because males are more commonly employed in grain and provision warehouses where rats are prevalent. In contrast to spotted fever its victims are usually adults and multiple cases in a family are rare. It is transmitted to man by the bite of an infected rat flea or mite. The onset usually is sudden with a chill, headache, malaise, fever. The temperature rising by daily afternoon increments to 103°-105° with a morning remission, lasts 10 to 12 days and falls by crisis or rapid lysis. The rash appears about the 4th day on the trunk as rose macules and spreads *centrifugally*. It may reach the extremities but never the face, palms, or soles and is always most intense upon the body. Occasionally it is petechial; rarely absent. The rash fades rapidly, lasting 2 to 9 days, is gone with defervescence, and leaves no staining. Conjunctivitis is usually present as are headache, backache, constipation, prostration, nausea, cough, night sweats. Nervous symptoms usually are absent or mild. Examination of the blood reveals no abnormality. The *Weil-Felix reaction* is *usually* positive in a dilution of 1-100 or more and may persist for a month or two. Occasionally it is negative. This reaction consists of agglutination by the patient's blood serum of a culture of Proteus bacillus recovered originally from the urine of patients suffering with epidemic typhus. It *may* be positive in conditions other than typhus or spotted fever but is found in *these alone* among the eruptive fevers. An early positive Weil-Felix with increasing agglutination titer as the disease progresses makes this non-specific test a specific one for these two diseases. The mortality of Brill's disease is less than one per cent. Treatment is entirely symptomatic. It may be prevented by the eradication of rats and by a prophylactic vaccine developed by the Public Health Service. This, however, must be taken yearly. Incidentally, the rat flea which carries typhus has been found all over North Carolina.

Rocky Mountain Spotted Fever, eastern type, occurs always in a rural resident or one who has recently visited the country during the tick season (March to November), preponderantly in males, often in children, and tends to recur in the same locality for years. Multiple cases in a family are common. The source is the bite of an infected tick or crushing an engorged one. The incubation period is two to five days. The onset is usually abrupt and violent with symptoms similar to but more severe than those in typhus. The fever is like that of typhus but rises higher, lasts longer (often 3 to 4 weeks) and falls more gradually. The rash appears from the second to the fifth day as faint rose macules on wrists and ankles and spreads *centripetally*. At first visible only at the height of the afternoon rise of temperature, the eruption becomes more distinct from day to day, petechial by the second week, and purpuric at its height. It is most intense on wrists and ankles, usually involves the palms, soles and face, is less marked on the trunk, lasts several weeks (e. f. typhus) and

leaves brown stains which may be brought out by applying a tourniquet to an extremity. In severe cases the eruption may be confluent. Parenthetically it may be remarked that the deeply tanned face and forearms of men may show the rash poorly. It is to be emphasized that there may be a very slight eruption or in rare cases none at all. There is usually a hemorrhagic palatal exanthem, a strawberry tongue, severe pharyngitis. Edema of the face and genitalia is common in severe cases and conjunctivitis is the rule. The site of the tick bite is not usually demonstrable but may exist as an ulcer with regional adenitis. Nervous symptoms are common and may be severe. Some degree of stupor and hebetude are almost always present and delirium of a maniacal type frequently occurs in severe cases, accompanied by loss of sphincter control, retention of urine, and paradoxical incontinence. Rigidity of the neck, a positive Kernig's sign and ankle clonus are found not infrequently. Severe cough and signs of bronchitis are the rule in the more serious cases. Examination of the blood reveals no characteristic changes. The total white cell count may be normal, reduced, or increased and the same is true of the differential. A moderate hypochromic anemia usually develops. Blood cultures are negative as is the Widal reaction. The spinal fluid may show an increased globulin and cell content. It is said that a false positive blood Wassermann reaction may be obtained. The Weil-Felix reaction is usually but *not always* positive from the first week on. This test is positive in a dilution of 1-160 in 37% of cases by the 9th day, 84% from the 10th to the 15th and 81% from the 16th to 32nd day. It may remain positive for weeks or months. As was emphasized under typhus an early positive reaction with *increasing agglutination titer* is diagnostic. The mortality in the east is from 25 to 33%.

Treatment is entirely symptomatic. Blood transfusion has seemed to be of aid in severe cases seen by me but the public health workers in Montana consider large doses of convalescent serum worthless.

Diagnosis: Without a history of tick bite or of exposure in an infected area, the diagnosis is impossible before the eruption appears. This disease has been confused with measles and indeed many of the early cases were called "black measles." However, the season of the year, history of tick bite or exposure, color and character of the rash, and the absence of coryza and Koplik spots should obviate this difficulty. The purpuric eruption of meningoccus meningitis and the marked neurological symptoms of spotted fever might cause confusion but the character and distribution of the rashes and the course of the two diseases differ rather markedly. However in case of the least doubt a lumbar puncture should be performed. Mild Rocky Mountain spotted fever with a scattered rash and palpable spleen may closely resemble typhoid fever. The differential points obviously are cultures of the blood, urine and stool, and Widal and Weil-Felix reactions. The differentiation from endemic typhus has been discussed in detail.

Neutralization Test: When a patient has recovered from Rocky Mountain spotted fever his blood contains antibodies for this disease to

such an extent that his serum will protect laboratory animals against infection. This test is utilized in making an accurate diagnosis in cases seen after the virus has disappeared from the patient's blood—eighth day.

Prognosis: In the east the mortality varies from 25 to 33%. The outlook is bad in patients over 45, in those with obesity or some underlying disease, and in cases presenting very severe nervous symptoms.

Human Pathology: Focal lesions are found in various tissues of the body but particularly in the brain. In addition, rickettsiae may be demonstrated in the endothelial cells of capillaries and small vessels of skin, kidney, pancreas, brain, etc.

Origin of Rocky Mountain Spotted Fever in the East: It is supposed that the infection is indigenous in the tick since eastern wood ticks are not found in the west and vice versa. However a possible explanation is that an eastern man or dog might become infected on a visit to the west, return home at once, develop the disease and infect the ticks of his community.

Prevention: Since there is no specific treatment for this serious disease it is necessary to stress prophylaxis. The following measures have been advocated:

1. Avoidance of tick bites.
   (a) Keeping out of tick infested woods.
   (b) Wearing clothing which prevents the ticks from reaching the skin where they may be felt.
   (c) Removing ticks from the entire body twice a day when exposed. This is effective because the insect cannot transmit the disease until 5 or 6 hours after beginning to feed. The virus must be *activated* by fresh blood.
   (d) The use of a kersosene spray on shoes and legs.
2. Destruction of ticks.
   (a) A flock of chickens will keep tick-free an area of 2000 feet about their base.
   (b) Efforts are being made by U. S. Public Health Service to develop and cultivate a parasite which destroys the ticks themselves.
3. Vaccine. Spencer and Parker have developed a vaccine which is quite effective when taken each year. They employ an emulsion of ground up infected ticks. This reduces the chances of contracting the disease to a minimum and entirely prevents a fatal outcome in those who develop it.

Public Health Importance of Spotted Fever in the East: This disease is nine times more prevalent in Montana than in our vicinity per 100,000 population, but for each 1,000 square miles Montana has only one quarter as many cases as have we. This is because here there is a higher human exposure rate. Therefore even though Montana is considered to be the

home of spotted fever, it is significant that owing to our density of population, the incidence of the disease per unit of area is four times greater here. For this reason it appears that from the standpoint of morbidity, interest in spotted fever may be transferred from Montana to the Atlantic seaboard. The future prevalence of the disease depends upon the density of population and the spotted fever carrier rate of ticks in infected regions. The rural population in this section is 18 times more concentrated than in Montana; the number of cases is about the same; hence the carrier rate in ticks is 18 times greater there than here. Should the tick infection ratio remain constant for the next decade or so there should be no increase in human cases. If, as it is reasonable to expect, there is an increase in the tick carrier rate, the human cases will naturally increase.

DISCUSSION

Dr. F. R. Taylor (High Point): Mr. Chairman and Members of the Section: You have already seen this afternoon that I rather like to discuss papers and pick out points in them that might be elaborated upon, but I must honestly say that Dr. Ravenel has done a piece of work here which is so extremely thorough that nobody can discuss it very much, or add to it. He is the second man who has dropped a bombshell in my pet theory about not wanting to hear a paper read twice before two different groups. I heard this paper read before the district meeting and I am certainly glad he brought it here.

He has been very modest about the type of work that he has been doing. He hasn't told you so, but he has done an enormous amount of original investigation along this line and spent a lot of time grinding up ticks and injecting them into animals and things of that sort, and I think that we are very fortunate in having a subject like this, an important subject and one which is of increasing incidence in our midst, presented to us with the authority of a man who has done his own investigating. Dr. Ravenel hasn't merely collected a lot of reports here and there and boiled them down and given them to us. He has actually gone out and done the work himself.

If there is one slight point that I would raise a question on, it is this: I am not quite sure that I like the terms "Eastern type" and "Western type." If you very clearly make it understood that you only differentiate the types in so far as one occurs in the east and one in the west, that may be all right. You might just as well talk about the the eastern type of measles, that is, east of the Mississippi river, and the western type of measles. You can't differentiate between the two types unless there is some clinical distinction or pathological distinction, or some other distinction, other than the type of tick that carries it.

From what Dr. Ravenel said and from what I have been able to learn myself I take it that nobody has shown that there is an essential difference between the two types, eastern and western, because it is admitted that possibly the western type may have been brought east and infected the

eastern tick, or somebody may have brought it here who lived out there for some time and then came east, or somebody might have gone out there from here and brought it back.

We can have the western type in North Carolina. I wouldn't mention this if Dr. Mann were in the room, but I don't believe he is. Before we heard of Rocky Mountain spotted fever, eastern type, at all, a man was taken sick with a fever and hemorrhagic eruption, in a hotel at High Point. Dr. Mann went down to see him, and the man told him what was the matter with him. He said, "I have got Rocky Mountain spotted fever. I have just come back from Cripple Creek, Colorado. There was a lot of it out there."

So we have Rocky Mountain spotted fever here. Whether that man happened to bring the disease here or not, I don't know. He probably wasn't bitten by a tick in the hotel!

I would like to ask Dr. Ravenel if there is anything to suggest that there are two separate types, eastern and western, and if not it seems to me it would be well to recognize them all as one and the same disease.

Chairman Shelburne: If there is no further discussion of this paper, I will ask Dr. Ravenel to close.

Dr. Ravenel: I think that the distinction between eastern and western spotted fever is merely geographical. The viruses must be the same, and they were merely trying to distinguish between this disease that occurs in the east and typhoid fever, and bring out the fact that it was very much like that which occurs in the west, just being different geographically, that is all.

When a man is immune to the western spotted fever, he is immune to the eastern, and vice versa. So it must be the same disease.

There is one thing I would like to bring out that I didn't mention in my paper. What is the public health importance of this disease in North Carolina? The disease is nine times more common in Montana per 100,000 population than it is here. It is four times more common here than in Montana per 1000 miles of territory. The reason for that is that our rural population is more dense.

You might say that from a public health point of view the interest in spotted fever has been transferred from Montana to the east, not necessarily to North Carolina.

The amount of spotted fever in the region depends upon two factors. One is the rate of infection among ticks of spotted fever, and the density of the rural population. If our rural population is going to remain the same, and if it is reasonable to presume the carrier rate among ticks will become greater, then we are going to see an increase in the disease.

Dr. John Symington (Carthage): How long after having had Rocky Mountain spotted fever can you find the positive test for having had the disease?

Dr. Ravenel: How long after having spotted fever may one find the positive test? There is a positive Weil-Felix reaction, that may remain in the blood for an indefinite time, one month, three months, sometimes a year. But frequently it becomes negative after a very few weeks. There is no definite time.

Dr. F. R. Taylor (High Point): How long may you protect animals by hygienic laboratory tests?

Dr. Ravenel: You mean after they have had the disease and are immune?

Dr. Taylor: Yes.

Dr. Ravenel: So far as we know, they remain immune for life. One attack of the disease confers absolute immunity.

Chairman Shelburne : The next and last paper on the program is by Dr. Cola Castelloe on the subject, "The Poisonous Spiders—The Black Widow."

While this paper is being read, I will ask Dr. Northington and Dr. Taylor to please meet so that they can make suggestions at the close of this paper for a Chairman of the Section for next year.

THE POISONOUS SPIDERS—THE BLACK WIDOW
(Latrodectus Mactans)

By Dr. Cola Castelloe

A REPORT ON SIX CASES

The Black Widow and the Tarantula are the two dangerously poisonous spiders of North America. The available literature shows the Black Widow species to be very much feared by the natives of South Russia, New Zealand, South America and the original Indians of this country, though not so well known to the present American public. It is interesting to us because of its proved poisonous bite, and since Bogan's 1933 review of the literature reports only 380 cases in the United States with 17 deaths, a mortality of about 4.5%, and of these 380 cases occurring in 18 states, mostly the south and southwest, including California, only nine cases are reported from North Carolina. Three adjoining physicians report personally of having seen a total of 21 cases. Adding the present six cases, seen by four physicians, make a total of 27 cases in one county. Medical textbooks at hand, with the exception of Stitt's, do not mention the subject and he infers much of the native fear of spiders is superstition, though in the last part of a short paragraph he states the Black Widow may be dangerously poisonous.

The spider which is widely distributed in the south and southwest and as far north as Connecticut, is a coal black one having a globose abdomen and with bright red and yellow spots as contrasting colors on the back and abdomen. The male and female differ in size and in markings. The Widow,

so called from its habit of eating its mate, is the larger. The Widow's body is about one-half inch long and one-fourth inch wide. The male does not bite the human, the female being the deadlier of the species. The distinguishing markings are found on the ventral surface of the abdomen. Here is found a red spot, usually of an hourglass shape, with also some red or yellow around the spinneretts.

The poison is a venom, more akin to the cobra venom than to our poisonous snakes, proved experimentally in the lower animals and in man by Coleman and Kellogg of Stanford University, and by Baerg of the University of Arkansas. Coleman did pretty work with the venom from the gland sac in dilutions, and with macerated eggs showed their almost instantaneously deadly effect when given by hypodermic to laboratory animals. This fits and is confirmed by the German, Kobert, who isolated the body poison from the body, naming it a toxalbumin and an arachnolysin which is a powerful hemolysin, proved by experiments to have very definite action on various animals, such as rabbits, rats, mice, geese and man. However, the principal poison is a neurotoxin. Different experimental workers noted the formation of immunity in experimental animals which had been subjected to repeated bites, and Troise of France prepared an effective anti-venin. An anti-venin is reported to be popularly used in Brazil.

The symptoms listed are a slight stinging sensation at the site of bite, sometimes unnoticed until questioned as to being bitten or stung by something; a tiny red spot at the site of bite not more than a flea bite in appearance; sometimes no markings at all; sometimes slight swelling, though usually none. In less than half an hour the characteristic pain begins, increasing in severity for several hours. It has been described as wild, agonizing, cramping and numbing, continuous and incessant. It is felt in the hips, back, abdomen, chest, legs, shoulders and arms, and "all over." A groaning, moaning, tossing, twitching, chattering, frantic patient is its real picture, frequently saying his bones will burst, begging for something to relieve him. When this continues after you have had the effects of ¾ gr. of morphine sulphate by hypodermic without much relief it is not necessary on our part to assume that superstition is at work in a non-superstitious native American adult man. A tight feeling in the chest until the patient cries out he can not get his breath. Spastic muscles with board-like rigidity of the abdomen is stated to be the most constant physical finding for which a few innocent appendices have been removed. Profuse perspiration, restlessness, nausea, vomiting, constipation, chills, ataxia, urinary retention, cyanosis, mental perturbations, insomnia, convulsions, edema, tremors, sometimes a rash and jaundice, are constant findings. There is a mild irregular fever with poly-leukocytosis; hyperactive reflexes, accelerated respirations, increased blood pressure, and slow pulse. The urine shows albumin and casts as a rule, sometimes blood. The acute symptoms last from four to 48 hours, gradually subsiding over a 24-hour period, though complete relief is not obtained under several days.

In the severe cases the patient is not able to return to work under a week, and complains of some aches or burning sensations as long as two months.

The treatment has been varied. Sedatives with morphine as its base, though Baerg objected to this when he was the experimental patient on the basis of eliminations being choked, but he was bitten experimentally on the finger and not on the scrotum or glands penis. Elimination—castor oil, etc., enemas. Catheterization, gastric lavage, hot water bath, lumbar puncture and intravenous glucose solutions have been used. Convalescent serum has recently been kept on hand in the Los Angeles General Hospital for general use and according to reports has materially ameliorated the symptoms and cut short the usual duration of the poisonous effects.

Case—A white carpenter, aged 49, was bitten by a black spider on the glands penis in an outdoor toilet about 6 a. m. He had only a mild stinging sensation at site of bite. I saw him about 15 minutes later with beginning generalized aching which was a little more pronounced in the back muscles. He then had some muscle spasm with fine tremors which was already causing a quivering speech. Hypodermic of one-fourth gr. morphine sulphate and atropine was given, and ordered him home in bed. About thirty minutes later I was hurriedly called to his home. I found him much worse, tossing and groaning in bed with pain, cyanotic and vomiting, marked tremors and spastic muscles with the board-like rigidity of the abdomen, and grunting respirations. At 30-minute intervals he was given two more quarter-grain morphine sulphate hypodermics without relief, and about three hours later another quarter-grain dose, making a total of one grain. He was still not relieved but I could keep him on the bed. He still begged for relief but I insisted I could not give him more then. Pulse was not above the normal rate. His B.P. was S170, D100. His previous normal readings for him had been S140 to 150 and D80 to 90. At 10:00 p. m. he was given quarter-grain morphine sulphate and sodium amytal grs. three. The next morning he stated he had not been able to rest any during the night. He appeared quieter and easier.

On the second day his fever was between 100 and 101 F. His urine was loaded with albumin, a few casts and an occasional red blood cell. From the second day on improvement was gradual, and after this milder sedatives were used. Castor oil was given the first day. He was out of bed on the fourth day and to work on the 14th day. Urinary finding gradually cleared and returned to normal in about three weeks.

Of the other five cases I consider two of them severe and three of the milder type. The milder types required only one hypo of morphine followed by codine or other mild sedatives by mouth. Five of the cases saw the black spider, two of them killed it and noted the red spot on the body. One bitten in a privy at night did not see the spider. Four of the six were bitten on the scrotum or penis. One was bitten on the knee, and one was bitten on the arm while in the field at work.

COMMENT

A vice-like quivering spasticity of the trunk muscles in particular which gives to the speech the quivering, chattering, quality in conjunction with the obvious agony the patient is in is a picture of its own. To pick out the rigidity of the abdomen without local tenderness, forgetting to see the other muscles, and remove an appendix had not occurred until I read of such. In one of our cases it appeared the maintenance of an alkaline urine was helpful. All cases recovered. Cases of Black Widow spider poisoning are much more frequent than published reports indicate.

REFERENCES

Riddick, Thos. M.: A Case of Poisoning from the Bite of a Black Spider, *North Carolina Medical Journal,* 41: 1-3 (October 20) 1897.

Walsh, Groesbeck: Arachnidism: A Case of Poisoning from the Bite of Latrodectus Mactans, *Southern Medical Journal,* 23: 1038 (November) 1930.

Hall, W. W., and Vogelsang, W. A.: Spider Poisoning: A Study of the Toxin of the Black Widow Spider, U. S. Naval *Medical Bulleltin,* 30:471-478 (October) 1932.

Troise, E.: Active Serum for the Venom of the Latrodectus Mactans, Compt. rend. Soc. de biol., 99:1433-1434, 1928.

Bogan, Emil: Arachnidism, Spider Poisoning, *Archives of Internal Medicine,* 38: 623-632 (November 15) 1926.

Bogan, Emil, and Berman, Phoebus: Poisonous Spider Bites, with Special Reference to the Latrodectus Mactans, A Clinical and Historical Study of a Widespread but Little Known Condition, *California and Western Med.,* 26: 339-341 (March) 1927.

Baerg, W. J.: The Effects of the Bite of Latrodectus Mactans Fabr. *The Journal of Parasitology,* Vol. 9: 161 (June) 1922-23.

Kellogg, V. L.: Spider Poison, *Journal of Parasitology,* Vol. 1 (March) 1915.

Baerg, W. J.: The Black Widow: Its Life History and the Effects of the Poison, *Scientific Monthly,* December 1923.

Watson, J. R.: The Bite of Latrodectus Mactans, *Science,* N. Y. ns. 55: 539 (May 19) 1922.

Leschke, Erich: Venomous Animals, Muenchener medizinische wochenschrift, 79: 1993 (December 9) 1932.

Eaddy, N. C.: Arachnoidism or Spider Bites, the *Journal of the South Carolina Medical Association,* 30: 9 (January) 1934.

Taylor, F. R.: Arachnidism and Its Treatment, *Southern Medicine and Surgery,* August 1933.

DISCUSSION

Dr. Dewett Kluttz (Washington): Mr. Chairman, we have had in our group of doctors six cases similar to that described by Dr. Castelloe. The symptoms he described are all typical of those that we had. In some of them the pain was worse in the chest, in some of them it was worse in the abdomen, in some of them it was worse in the lower extremities. There was some pain in all parts most of the time. The pain was there all the time; from the time we saw the patient until several days later there was a continuous terrific pain.

This has been described by one of the authors that we found on reviewing the literature as intermittent "tortication" of muscles.

In our cases only one of those as I recall had slight symptoms of angina pectoris. None of these patients were elderly and I just wondered what would happen if one of these patients happened to be an arteriosclerotic.

But he described the symptoms of typical angina pectoris distress here, radiating down the arm. The symptoms in the abdomen were the board-like rigidity—and in one of the patients this occurred: Dr. "Josh" Tayloe had seen him down at his office, and he phoned the hospital to prepare for an appendectomy.

The board-like rigidity had not localized in any one particular place. The man decided he would try watchful waiting. They gave him icebags, and he went home. The next day the doctor saw him and he said, "A little spider bit me, Doctor. Do you reckon that had anything to do with this pain."

That exploded the operation, of course.

Another thing about the abdomen: I notice in treating these patients that they have severe constipation. You can't drive anything through them for several days. I would picture it as a typical spastic condition of the musculature of the bowels.

The reflexes are increased. It looks like a poisoning, so much so that when an article appeared on treating strychnine poisoning with intravenous amytal, I tried it on one of these patients who came in. I used three grains in the muscle, with no effect. The next time I gave him a seven grain dose, with no relief of the pain or reflex. Possibly if I had gone up to fifteen grains there would have been some relief but I felt satisfied, because it takes repeated doses.

I remember one of these men lying in bed, twisting and rolling, and complaining of most of the pain down the leg, and drawing it up cramped, simulating strychnine poisoning, as I said.

In the literature there is one description given of an exanthematous rash which it says doesn't appear as often in this type of spider as it does in some others. None of our cases had this rash but in some there was an urticaria, a wheal-like condition around the point of the bite. This brought up the thought of an allergic proposition having something to do with it.

Others ascribe it to a slight amount of hemolysin in the black widow although it is much stronger in bites from other ticks. But in the black widow bites that we have had (apparently black widow; as a matter of fact I haven't seen any of the spiders) none of them showed any symptoms of hemolysis. There was no rash, petechiae, or anything of that nature.

Regarding the psychical element that one author described, most of these people didn't know exactly when they were bitten and a lot of them didn't realize they were bitten by a spider, and they wondered what it was all about. I don't think it can compare with the case they tell about the man who let a rabbit-snake bite him just because he didn't get stage-fright and run away. He got along all right and nothing happened. I heard that told on two occasions. But these people are sick and they stay sick.

Reviewing the literature, I find that most of these spiders inhabit privies, but they are also found, at least the white eggs are found, on the rocks in the pastures. But most of them are in privies, and all of these cases, with one exception, were bitten on the privates.

The question of prophylaxis of the modern privy should be considered here. If any of you saw W. O. Saunders' recent issue of the *Independent*, which he termed the "privy issue," you probably found it very interesting, but in that he made no mention whatever of prophylaxis against spider-bite. I am sure he didn't think of it.

President Manning: Mr. Chairman, I have to make a confession because last summer in my travels through the state I stopped at Windsor and visited Dr. Castelloe and Dr. Evans. While I was there, a child was brought in with a spider-bite, or a bite of some kind. Dr. Castelloe was called in in consultation to see whether it was a black widow that had bit the child. I talked with him about the black widow, which was something I had never heard of before, and I wrote to the Chairman of this Section and asked him if he wouldn't ask Dr. Castelloe to present a paper on the subject, because I thought it would be a fine thing to have in the Transactions. There was no record of it, so far as I knew, in any of the journals, so far as North Carolina was concerned, and I felt sure that many of the physicians in the state did not know about this black widow spider-bite.

Later on I happened to be in Morganton, out at the hospital, and they were talking about a patient that had been brought in there that they thought possibly had had a bite from a black widow spider, but they were not certain. They didn't know any more about it than I did.

So I assumed that perhaps there were many physicians in North Carolina who had had no experience whatever with the bite of the black widow spider and I thought it might just as well get in the Transactions of the State Medical Society, which is the only organ through which many doctors can and do write. (Applause)

Dr. J. M. Northington (Charlotte): When I was practicing in Columbus County—a county adjoining one in which a partner of Dr. Castelloe's, Dr. L. B. Evans, rendered such fine service to his patients—coming home one evening rather late from attendance on a labor case I was summoned by some eight or ten persons to immediately go to a home where a man was suffering terribly. They assumed that he was going to die because somehow there lingers in the minds of the laity the idea that the seriousness of a condition or the liability of death is commensurate with the pain complained of.

The patient was a locomotive engineer, about sixty years of age. He had been married 35 years or so. There were no children.

I was told, mostly by his wife, because he was writhing with pain and couldn't tell me very much, that he had gone out to the privy and had come back complaining that he had been bitten on his penis by something, and soon afterward he had begun to suffer terrible pains.

I investigated. I didn't find the spider. Someone mentioned that the spider has never been found. But I am convinced that it was a black widow spider bite.

I had to give him large doses of morphine and stay with him for two or three hours, before he would allow me to go home.

Dr. Joseph J. Combs (Raleigh): I enjoyed Dr. Castelloe's paper very much and I think we owe a debt of appreciation to Dr. Manning for having this paper brought before this Section.

I had the same experience of being called in on a case that I had been following prenatally. The woman was in the ninth month of gestation. When I came in she told me that she had been bitten by a spider on the right arm. I examined her and found a mark at that point. She was complaining of severe pain in her back. The question in my mind particularly was whether she was in labor or not, but I decided she was not. She did not have the abdominal rigidity, and there wasn't any question of acute appendicitis because I couldn't keep her quiet long enough to make an examination. She desired to walk the floor.

I gave her a quarter-grain of morphine and got no relief. I gave her another quarter-grain and didn't seem to get much relief. I told her I had to go back to the office. If half a grain of morphine wouldn't give any relief, I wanted to find out if I was ignorant and see if there wasn't something specific I could find out about the thing. I had poor luck in looking up the literature. I did find one small paragraph about it.

I called Dr. Shore. I thought he might know something about it from his work at the laboratory, and he said he didn't have any reports on bites except the tarantula.

My case was also different from Dr. Castelloe's in that the urine was negative. I had seen somewhere that sometimes these cases had albumin and I looked for that but couldn't find it.

I think it is a good thing to bring this subject before the members of the Section because if a doctor gets such a case and hasn't heard about it (like I hadn't) he will probably be in the same boat I was in, absolutely stumped when he finds that morphine won't relieve the pain.

A physician in Mexico who had been bitten himself stated that he was never any more afraid of death than during the few days that he was sick.

Bogen suggests convalescent serum, and I happened to know of one case—he told me had been bitten seven years before. I injected 20 c.c. of his whole blood into the buttocks of a patient twenty-four hours after she had been bitten but I don't believe it did any good. Dr. Taylor of High Point tells me that the convalescent serum, to be any good, has to be taken within a short period after the bite, a period of about ten days.

I thank Dr. Castelloe for the paper. (Applause)

Dr. R. G. Sowers (Sanford): I don't know whether it is a reflection on my community, or what, but I think in the last five or six years I have seen about a dozen of these cases, and I am sorry that it is not more a matter of fact than of fiction about Reilly's poem about the "Passing of

the Old Backhouse," because of the number of cases that I saw that I think were all bitten somewhere about the genitalia in an old privy. In none of those cases did I find any albumin or blood or anything that showed up in the urine. I didn't take the blood pressure of all of them but the ones that I did see didn't have any elevation of blood pressure that I could attribute to that more than what might be expected from the rigidity and the nervous symptoms of the cases as we found them.

I think the differentiating point between this and appendicitis is the tenderness. This involves rigidity and pain more than tenderness. That has helped me in my diagnoses. In the cases where there was a question, I didn't find any leucocytosis—and I did a blood count where there was any question about it.

Of course, there might have been an error in my diagnoses because we were never able to locate the spider and in most of the cases, with possibly just one or two exceptions, we were not able to find out where the bite occurred. There was just a stinging sensation and that was all there was to it. There was no other sign there. There is no swelling. There is no redness. There is no tenderness, or anything like that. It was just a question of soreness with this train of symptoms that Dr. Castelloe has described following it, without anything else to show. And the thing that helped me most was that the histories of these cases showed that this pain occurred about fifteen, twenty or thirty minutes after the patient had gone to one of these old-fashioned privies.

I read in one of these trade journals where we see so many suggestions for so many things that if you would give some sodium cacodylate it would help. The suggestion didn't appeal much to me. I didn't see how it could help, but the next case I saw I gave 7½ grains of sodium cacodylate intravenously, and the patient was up the next day. The second case I saw I did the same thing and the patient was up and about in a short time, quicker than he would have been otherwise. I don't know that it had anything at all to do with it and won't attempt to say that it had, but I will say that those patients did get up and about quicker than they would have ordinarily.

As far as relief of symptoms is concerned, I think there are two things that we should do about that. One is for the relief of the excruciating pain. Of course, morphine is the outstanding thing for that.

I don't know whether you folks use hyoscine or not. We use hyoscine, morphine, cactoid to boost up the depressing effect of the hyoscine. But I find that you get better relaxation from the hyoscine when you give it than from a quarter of grain of morphine, and you usually have your patient under control. You might as well go ahead and give him one and wait a few minutes, and if that doesn't do it, go ahead and give him another, because you can diagnose your case symptomatically largely and then it is a matter of relieving the symptoms as far as we are able to treat them now, because out in the rural districts we are not able to get hold of this convalescent serum, or anything else.

So it is a matter, as I see it, of relieving the symptoms by giving one number 1 H. M. C. tablet and if that doesn't relieve, then in thirty or forty minutes giving another, and then, as far as you can, saline elimination. My cases have given me good results from this treatment.

Dr. B. C. Willis (Rocky Mount): I heard a discussion of this subject at a meeting of the Seaboard Medical Society at Suffolk some few years ago, in 1931, I believe, and I was very much interested in it, and we have seen two cases at Parkview Hospital. One of them was sent in, supposed to have a surgical abdomen. We obtained a history of bite and did not perform an operation in either case.

We tried morphine and did not get relief—we gave it in large doses. We then tried calcium chloride and we found that that gave short relief, probably lasting an hour. I just offer that as a possible suggestion, when you have given all the morphine that you dare to.

I was wondering what avertin might do for some of these cases.

Dr. F. R. Taylor (High Point): I don't want to prolong this discussion, but I have been very much interested in this subject. Dr. Christian asked me to write a short chapter on it in *Oxford Medicine,* which has just come out. There are a few points that need emphasis.

In making a differential diagnosis between spider-bite and acute surgical abdomen there are a number of things of importance.

The first case I ever saw was in 1915. I didn't know what it was then. I didn't know what it was until I saw something about it in the literature some years later. The man was substandard mentally and he insisted that a snake had bitten him in a privy. We went out there and could find no snake, and we could find no mark of a bite. But he had the fully developed picture. I didn't think of appendicitis but I did think of something worse. I thought of a ruptured peptic ulcer.

I called a surgeon in in consultation. The surgeon admitted he didn't know what it was but he didn't believe it was that, and we both admitted then we didn't know what was the matter with the man. We gave him some morphine and let him get well.

I wouldn't trust too much to the absence of tenderness or the absence of leucocytosis. I have seen tenderness in these cases, but it isn't localized. It is generalized. Tenderness may however be entirely absent. When it is present it usually disappears before the pain.

Leucocytosis has been described. You can get anything in the blood, apparently, from the material in the literature, from a leucopenia on up to a leucocytosis. You can't depend on your blood-count to exclude a surgical abdomen always.

I am very sure, just from this meeting today, that this condition isn't reported as it should be. I am very glad Dr. Manning had it brought before the meeting. It is rather extraordinary that in a very dramatic picture like this there have been only ten cases reported in North Carolina according to Bogen, who is the authority in this subject.

The Los Angeles General Hospital has reported 250 of these cases from California out of a total of 380 cases reported in the entire United States. The Los Angeles General Hospital is the one place in this country equipped to give specific treatment, which must be given early to be effective, and they keep convalescent serum on hand all the time there. I doubt if that would be very practicable here because the blood has to be taken from the patient in from one to ten days after the bite, unless some good means of preserving it is worked out, and it would probably be too costly to have it and keep it in readiness in sparsely settled rural districts where this is most common.

Sometimes there is no history of a bite. Sometimes there may be a history of bite, with no severe pain, because the initial pain is much less than that of a bee sting, and later the symptoms come on. In the absence of a history of bite, and in the presence of a condition like an acid (peptic) ulcer which might rupture at any moment, you have quite a diagnostic problem which might be solved. It seems to me it is comparatively easy to solve if you just simply know about the condition and know what to look for. That is why I am particularly glad to see this paper being presented before this meeting. Back in 1915 when there was nothing in the literature about it, none of us suspected that a spider could produce a picture like that of my patient. We didn't know what was the matter with him. By the way, I should say he was an elderly arteriosclerotic and nothing happened to him.

Perhaps the most important distinction, in the absence of a history, is that these pains are generalized, not simply confined to the abdomen. They come on some time after the bite and then they spread all over the body. The patient can't get his breath. Those of you who have seen this don't need me to tell you what a dramatic picture it presents. The patient catches his breath in irregular gasps, and often says he is dying.

I am sorry Dr. Roy Mitchell has gone home. We ought to have him discuss this because he was bitten by one as a child. He made a significant remark to me. He said he felt as if every muscle in his body were being torn loose from its insertion. I think the pain is due to muscle spasm, probably spasm in the abdominal viscera, as well as intense spasm of the abdominal wall.

I don't think that the hemolytic part of the toxin has much to do with it because Hall and Vogelsang of the Navy have done careful work on the venom and they have found it is a non-hemolytic neurotoxin. The Indians used to use it for arrow poison more or less interchangeably with rattlesnake venom.

The prognosis is not absolutely good.

The mortality rate as collected by Bogen is about 4½%, 17 deaths out of 380 cases. Most of them have been in children, and Bogen suggests that some of the deaths, like some of the deaths from snake-bite, have been due to over-treatment with alcohol, huge doses being given. Children

being particularly susceptible to alcohol, he thinks that may be responsible for some of the deaths.

I was interested in the failure of sodium amytal to relieve. I have seen one patient who was treated with sodium amytal who did seem to get some definite relief, but certainly you have to use opiates in very large doses.

They are preparing a serum from sheep, an antivenom in Brazil, in that big antivenom laboratory there where they are doing so much work on snake-bite, which may become available commercially in this country and may be worthwhile as a definite, specific treatment. (Applause)

Dr. J. C. Leonard, Jr. (Lexington): I have been working with Dr. Walsh at Birmingham, Alabama. He became interested in this subject some three or four years ago, and in going over the hospital records there we collected, as I recall, seventeen cases of the widow spider bite, and during my residence there it was my privilege to sit with two patients who came in, from the time of admission until they obtained relief. I made blood pressure observations and blood-counts at hourly intervals, and made a urinalysis on admission and on the second day.

These were the only two cases that came in during that time. And we found no change in the blood picture. In one case a slight albuminuria was shown on the second morning. There was no change in the blood pressure in either of these patients.

In the case of both of these patients, after they both had a quarter of a grain of morphine and experienced no relief, they were given a second quarter of a grain of morphine, with 10 c.c.'s of a 50 per cent magnesium sulphate, and they seemed to get relief more quickly from that than from anything else.

I don't know that it had any particular value because I wasn't able to follow it up any further, but that is just a suggestion.

Dr. Wm. N. Williams (Tabor): To the doctor who has just discussed the paper I would say that black widow spider bite in Columbus County of this state is not an uncommon incident.

Five years ago I was called out to see a case of this nature. At the time all I had with me was my obstetrical kit and my morphine. I gave the patient morphine with very little relief. I stayed with the patient somewhere around five hours perhaps and because I knew of nothing else to do at all and because the family were so upset, I gave the patient an intravenous injection of magnesium sulphate and the symptoms were promptly, you might say, ameliorated.

Since that time I have used magnesium sulphate routinely in the treatment of this spider-bite, with very, very satisfactory results. Just exactly why it is, I am not able to explain. But magnesium sulphate in conjunction with morphine is my routine treatment in black widow spider bite.

Chairman Shelburne: Is there any further discussion?

Dr. R. B. Davis (Greensboro): I think my interest in this dates back further than that of any man in this audience, since it was 1904 when I was bitten by a spider, and I remember very well the very spot. (Laughter) And if anyone thinks it is fun to be bitten by a spider, he should be bitten by a little one first. (Laughter)

It so happens that someone had told me—I suppose it was my mother—that when I got a bite I should stick the wound in my mouth and suck the poison out. The spider bit me on the end of that thumb. I can remember it very distinctly. I never saw a spider so mad in my life. I sat down on the ditch bank and didn't see the spider until it jumped on my thumb and it must have jumped that far (indicating about a foot) and it began digging right in. And it hurt, too, I will tell you. Well, I killed the spider in one stroke and the next stroke I put my thumb in my mouth. While sucking it I tied a string around my thumb and I sucked until the blood was coming out of the end of my thumb.

Of course, I suppose that was the reason it didn't hurt me very badly afterwards.

Since that time I have only seen two cases and I trust I will never see another.

Chairman Shelburne: If there is no further discussion I will ask Dr. Castelloe to close.

Dr. Castelloe: I think it is obvious that the condition is much more common than the cases reported in this state would indicate, and deserves serious consideration so that it will be recognized by physicians when they see it.

Referring to the comments of Dr. Davis, who said he had been bitten on the thumb, I will say that in experimental animals, in the case of some of them, the spider didn't bite through the skin. The skin was just partly clipped. I rather think that the lack of his serious symptoms was due to the fact that he didn't get a full dose due to the thickness of the skin. Two cases that were not bitten on the privates were not as sick as the people who were bitten in those parts.

Chairman Shelburne: That brings our session to a close and the Chair will now be glad to recognize the Nominating Committee, who are to suggest a chairman for this section for next year.

Dr. F. R. Taylor (High Point): We would like to propose Dr. Verne S. Caviness for Chairman.

. . . Dr. Caviness was elected. . .

. . . The meeting thereupon adjourned at five-thirty o'clock. . .

SECTION ON SURGERY

Tuesday Afternoon Session, May 1, 1934

Dr. Addison G. Brenizer, *Chairman,* Charlotte

The Section on Surgery of the Medical Society of the State of North Carolina convened at two-thirty p. m., in the Ball Room, The Carolina, Pinehurst, Dr. Addison G. Breziner presiding as Chairman.

Chairman Brenizer: Ordinarily, at the ragged end of this meeting, when sometimes there are very few men here, the Chairman of the Section is elected to appoint the Chairman of the Section for the next year. Reversing that order from the very beginning, and in order that there will be some thought given to it, I shall appoint a committee to suggest the Chairman for next year, and I would like to appoint, if I may, on that Committee, Dr. Bulla, from Wilmington, Dr. Julian Moore, from Asheville, and Dr. Sweaney, from Durham, to suggest a Chairman for the Section for next year.

The first paper on the program today is quite a privilege here for us, and is to be given by Dr. Fred W. Rankin, whom we all know, who was originally a North Carolinian, from Mooresville, North Carolina, then was at the Mayo Clinic for a number of years, and now is in Lexington, Kentucky.

Dr. Fred Rankin's paper will be on "Cancer of Colon," and it is to be discussed by Dr. Frank K. Boland, of Atlanta, Georgia, and Dr. Robert L. Payne, of Norfolk, Virginia. I shall announce the gentlemen who are to discuss the papers beforehand, so that you will have it well in mind.

Now may I introduce Dr. Fred W. Rankin, from Lexington, Kentucky. (Applause)

Dr. Fred W. Rankin (Lexington, Kentucky): Mr. Chairman and Gentlemen of the Section: It is not often I get a chance to talk about the whole lower end of the gastro-intestinal tract in one day, and I am not going to try to discuss it at any great length. I would like, however, if I may, to just touch on one or two points in diagnosis, and the prognosis—I think, after all, the important parts of it are in the prognosis.

The diagnosis of cancer of the colon, of course, we all agree, is finally made by the roentgenologist, and I think that there is not quite a sufficient appreciation of one fact relative to the duties of the roentgenologist in making a colonic examination. I don't know whether it is true in North Carolina, but it is true in a great many other parts of the country, that an individual with a suspected lesion of the colon will be sent to the roentgenologist with orders for a gastro-intestinal series.

That not infrequently results in the patient being given an opaque medium by mouth, and more often than one suspects, that particular act superimposes upon a malignancy an acute intestinal obstruction. That is

not a theoretical objection, it is a very practical objection, and I think something that should always be kept in mind.

In other words, if we suspect a carcinoma of the large bowel, we should never administer a heavy opaque medium by mouth. Not only is it worthless from the standpoint of diagnosis in a carcinoma of the large bowel, but it has this particular disadvantage of producing obstruction in a very definite number of cases.

If the growth is on the left side of the colon, it is quite often the case that obstruction results, with two unpleasant conditions, instead of one, with which we started.

Now, we should consider from the standpoint of diagnosis, pathology and treatment, the colon as a dual organ. That is, the right half of the colon is an absorbing organ, the left half is a storehouse. The right half develops from the mid-gut with the small bowel around to the ampulla, and the left half develops with the hind gut. Embryologically and physiologically they are quite different. Symptomatically they are just as different, because the lesions in the right half manifest themselves by disturbances of the physiological functions in the left half, by obstructive phenomena. If we recall that, it gives us a great many clues to suspect a lesion which would not be suspected otherwise.

The three classes of right colonic cancers that manifest themselves, I think, are first the dyspeptic group, suspicion of gall bladder, and a chronic appendicitis being aroused, and frequently resulting in an exploration which reveals a malignancy. Then there is the anemic group and the accidentally discovered group.

On the other hand, in the large bowel, all of the phenomena practically are obstructive for very good reasons. In the first place, the pathology is different, the growth is a signet ring growth. In the second place, the bowel is anatomically different, it is a more muscular bowel, it is more muscular because it is needed to perform the expulsive function of the left colon. In the third place, the fecal column on the left side of the colon is formed, and on the right side is liquid.

Now, we should probably except that group of cases which may be about one out of four, or one out of five, which come on as acute intestinal obstructions. We could disregard any emergency in dealing with colonic malignancy. In other words, it is a group of cases that are chronic, that lend themselves very readily to plenty of time for study and for preliminary preparatory treatment.

I think it is very unwise, very unsatisfactory, to rush to make a diagnosis of carcinoma of the colon, and send that man in for operation no matter what kind of operation you do, or how skillfully you do it, immediately and without adequate preliminary preparation.

In a chronic obstructing carcinoma which has been present over a number of months, the individual, if the carcinoma is beyond hepatic flexure, will almost invariably show signs of obstruction if explored before decompressive measures have been undertaken, and by "decompressive

measures" I mean either the medical decompression, by repeated enemata, small doses of mineral oil or what not, as a purgative, and if that fails, a blind cecostomy.

That is a most advantageous type of operation in acute intestinal obstruction due to carcinoma of the large bowel; that without any exploration, one picks up through a McBurney and puts a big tube in.

May I be forgiven for condemning appendicostomy? It is merely a half-way measure, not perfectly useless, but it is very inadequate as a decompressive procedure. It is just as hard to do as a cecostomy and it is just as liable to not be of any advantage if the appendix is obliterating or if there is any difficulty, if you find one with a small lumen, you need a large tube as big as your thumb. A cecostomy is the best, I think.

Now, graded operations, it seems to me, have been very advantageous in getting rid of colonic carcinoma. The first stage of a graded operation is a decompressive measure, and decompression by ileocolostomy, which side-tracks the growth on the right side of the colon is a good method of procedure; it may not be the best one.

Cecostomy for a left-sided growth and a subsequent resection seems to be the better way of handling the left colon. Personally, I have no ambition to perform a splendid technical operation before which anastomoses of the left colon, side to end or any other way, are wide open following the removal of a left colonic group. While I am perfectly sure that one can frequently get away with it, I am just as satisfied that if he does it in fifty cases he will raise his mortality five to ten per cent.

Graded operations have been very satisfactory to me. I think that they have reduced the mortality, they have not only done that, but they have increased the operability to a point where the operability should be about one out of every two cases, and the mortality should not rise over ten per cent.

The end results in following successful removal of colonic cancers is better, as those slides I showed you this morning indicated. Some of them showed rectal carcinomas. They can be removed with just as small a mortality as rectal carcinomas, and the end results, because of the lack of glandular involvement, and because of the low grade of the growth, will be enhanced as one approaches the colon.

Of course, we have more cancers of the colon in the sigmoid than anywhere else, they are almost invariably at the junction of the sigmoid with the colon, and that is another reason, in addition to the anatomical conformity of the cecum and the liquid content, that they don't have obstruction.

Occasionally you will have acute intestinal obstruction. I have only seen two cases of that, and both of those were right at the ileocecal valve and caused direct encroachment on it.

The end results, as we saw, from successful resection of the large bowel, outdistance those in the rectum. When one can get sixty-three per

cent of grade one cancers of the colon well over a period of five years, that is a relatively successful figure—fifty per cent of grade two, and thirty-one per cent of grade three, and twenty-four per cent of grade four.

DISCUSSION

CHAIRMAN BRENIZER: You have heard Dr. Fred W. Rankin's paper. I know we are all grateful to him for giving us this instruction.

The first gentleman who will discuss that paper is Dr. Frank K. Boland, from Atlanta. Dr. Boland! (Applause)

DR. BOLAND: Mr. Chairman, and Gentlemen of the Section on Surgery: I feel like it is almost presumptuous for one to attempt to discuss an address on surgery of the colon by such a master as Dr. Rankin. I feel that when we hear him talk on this subject, we are verily hearing "The Master's Voice." Surely North Carolina should be proud of such a native son.

I think I am glad he emphasized the point with regard to the routine examination of these cases, and particularly the use of the McBurney.

Now, in the past a great many cases have been overlooked for too great a time, because only the gastro-intestinal series was used. And also, I have seen two cases of intestinal obstruction result from the use of oral administration of barium in these cases.

I believe that we should, it is the duty of the medical profession to put more emphasis on early diagnosis of cancer of the colon. I would like to know what has become of the discussion of a periodic examination of apparently healthy persons. I haven't heard so much about that in the last few years. Five years ago and ten years ago we were talking about that a great deal, and I guess a good deal of it was done, but I believe that if some of the time and money spent in that movement was used in making some X-ray pictures of the stomach and of the colon, occasionally and periodically of men and women past forty years of age, we would be able to catch some of these cases early enough to do them some good.

I must admit that in my experience, most of the cases of cancer of the colon are presented to me in the form of acute intestinal obstruction, when all that can be done is a palliative colostomy.

I believe the profession should become more awake on this subject of the early diagnosis. We are taught that one of the principal early signs of cancer of the colon is a change in bowel habits, and when a patient is presented with any kind of change in bowel habits, incomplete stools and returning to stools from time to time, feeling that complete evacuation had not taken place, such cases should at once be subjected to a sigmoid examination. I think that is one of the principal things for us to think about, with regard to this subject.

Now, such a surgeon as Dr. Rankin and other surgeons don't get to see these cases in their incipiency; when they see them they are full grown, and therefore it lies with the general practitioner and the internist

who see these cases first to be ever on the alert for cancer of the colon and cancer of the stomach.

Our only hope in reducing the mortality in these two common and disastrous conditions is in making more early diagnosis than we do now. (Applause)

CHAIRMAN BRENIZER: The next gentleman to discuss this paper is Dr. Robert L. Payne. Dr. Payne is also a native North Carolinian, now a surgeon in Norfolk. Dr. Payne! (Applause)

DR. PAYNE: In trying to handle surgically the problem of lesions of the large bowel, I imagine each and every one of you surgeons in the audience is probably in just about the same boat that I am; that you have a few of these, or perhaps an increasing number of them, every year, to handle, and with each one of these cases, I am forcibly impressed with the necessity for segregation, and intensification in the handling of these problems. I would like to pass the individual case as it comes to me, along to some one like Dr. Rankin, who could handle it more ably.

I don't believe, unless you are doing much colon surgery, that you can realize what immense responsibility and care is involved in the surgical handling of carcinoma of the colon.

If you stop to think that mere preparation for colostomy should occupy five or six days, that after the colostomy is made it should best not be opened for eight to ten or maybe twelve days, that following the opening of the colostomy, the patient is hospitalized for maybe a week more, and then should go home for four to six weeks at best for rehabilitation before the final stage of the operation is done; and following the final resection, the patient usually spends from three to five months recovering from that operation, it makes, as you can see, a tremendous burden of responsibility, imposed over a long period of time, on the surgeon who assumes the responsibility for the outcome in such problems.

Dr. Rankin has bitten off a tremendous job, and skillfully has carried it through to a splendid finish.

We are indebted to Dr. Rankin for teaching us about all we know at this present time of treatment of malignancy of the colon; for the teachings of the Lockehart-Mummery technique and the one stage operation of Miles' would have never helped you and me who do few of these cases a year. Our mortality would be very high in most or all of them.

Dr. Rankin has taught us that two-thirds of all lesions of the colon are malignant, and that in the majority of these, nearly total obstruction is present, and that therefore detoxication, decompression, and preoperative preparation is more important than the technical maneuvers incident to the caring for the growth actually in the operating room.

There are a number of points that come up from Dr. Rankin's paper this morning, and his talk this afternoon, that have brought thoughts to me that I would like to discuss.

First is the question of fixation or operability of the growth. We know by diagnosis which is the important thing, that by the new double contrast method of X-ray diagnosis, brought out by Fisher, popularized by Weber, and explained to us by Rankin, we can probably locate and differentiate the pathological lesion with which we are dealing, and relate it to the outcome; then having determined this, we must decide upon the question of exploration and colectomy.

The fixation of a growth, and the determination of its operability at the time we explore it, is an exceedingly important feature, and is almost the crux of the situation providing one is able to care for the problem in other respects.

Given a markedly fixed growth, I have learned to doubt in the beginning very much whether the growth could be removed, whether the patient should not be consigned to a low colostomy as a permanent thing, and nothing further done. However in the absence of glands or liver involvement in the primary exploration, at the second exploration one is often surprised to find that this marked fixation has disappeared as a result of colostomy, rest and detoxication, and the growth then becomes removable.

So let's remember that in our primary exploration, if we think a growth is not removable, don't give up in that particular case, unless other factors are present, until a second exploration is made and then you feel that resection is hopeless.

The next question that impresses one is youth and old age. One of the hardest problems is all of these cases that I get are old; it isn't the type of malignancy incidental to old age that worries me, but the other factors in the problem, especially the renal complication in men.

Almost invariably in those cases unless they are safeguarded with prolonged detoxication there will be a certain amount of real insufficiency which will take your patient away when you least expect it.

Therefore, the question of youth, and the fact that malignancy is worse in youth seems to be counterbalanced by the fact that the complications of old age, aside from the cancer, make the handling of the problem equally as difficult.

The direction of the growth, as Dr. Rankin brought out this morning, is another important factor, and I have always estimated that by the amount of obstruction present.

I don't believe that the average surgeon who does a dozen colon cases a year should think for one moment of trying to handle these cases in any way except by graded steps, and three graded steps at that.

The question of preservation of the sphincter is not to be considered because that is easily outweighed by the fact that with the posterior operation, whether you preserve or don't preserve the sphincter, you do not get the glands, and therefore your percentage of recurrences is bound to be just about fifty to sixty per cent higher than by the combined abdominal and peroneal operation.

The fear of permanent colostomy is another thing that seems to be weighing heavily on most people. The patient doesn't understand it, and in the majority of cases, the surgeon who handles a few of these cases has grown to fear this problem.

Dr. Rankin has told us that this is not a fear which we should entertain, and I know from my own experience that I no longer give the question of doing a colostomy on a patient a single thought when I know it is for his good. I have a great many of them around Norfolk that are doing everything that any other human does, in a perfectly normal way, through the use of a colostomy bag, or colostomy belt, and irrigations. Dr. Lahey showed us a series of cases last fall, in which sixty-five per cent of his colon resections were not wearing any form of apparatus whatsoever, and were having no difficulty at all with any passage of bowel contents or gas, simply through the measures of a proper diet, and the taking of an enema at night every three days.

Now, if that is possible, gentlemen, the fear of colostomy should pass out of our minds.

Finally, Dr. Rankin said something this morning, and I talked to him a minute before we came in about it, that I think is more important than anything else that has been brought up here today. He stated that the prognosis and the end results in malignancies of the colon, especially the rectum and sigmoid, were as good or better than malignancy anywhere else in the gastro-intestinal canal.

That is absolutely at variance with what I have thought, and what I imagine the rest of you believe; for I have entertained up to this time, the idea, and more or less the conviction, that the unfavorable results of malignancies of the colon as compared to the rest of the gastro-intestinal tract presented a difficulty that would be hard to surmount.

Thus, the result that Dr. Rankin has attained in making malignancies of the colon approach or improve on the problems of malignancy elsewhere in the gastro-intestinal canal is due to the fact, as Dr. Rankin has demonstrated, that a general surgeon with a large experience can do any sort of surgery, and he has paved the way of intensification in one type of surgery, and you could do likewise if you worked as hard as he has over it.

He has shown that it is possible to intensify and improve your methods, and your technique; that by decompression, by detoxication, by careful pre-operative and post-operative care, by proper diagnosis beforehand, by pathological differentiation of the lesions and their relations to the outcome, you may secure the results he has quoted, namely, that malignancies of the lower bowel, in results, have surpassed results obtained in malignancies of the gastro-intestinal tract elsewhere.

That is the outstanding thing that has been brought out today.

Chairman Brenizer: Gentlemen, you have heard this excellent paper and discussion. Is there any further discussion or any questions to be asked the author of the paper.

CHAIRMAN BRENIZER: Just at this stage, I know that Dr. Coleman is here, I know that Dr. C. W. Roberts from Atlanta is here as a delegate from the Georgia Medical Society. These gentlemen are to be given the privilege of the floor.

Are there any other visitors? If so we likewise extend to them the privilege of the floor.

CHAIRMAN BRENIZER: The next paper is a paper on "Torticollis," by Dr. Foy Roberson, from Durham, and it was to have been discussed by Dr. Hugh Thompson, of Raleigh, and Dr. A. R. Shands, of Durham. Dr. Roberson!

TORTICOLLIS

By DR. FOY ROBERSON, Durham

While not particularly common, congenital torticollis occurs frequently enough and, if neglected, is far-reaching enough in its effects to be worthy of consideration by this group.

Torticollis may be congenital or acquired. In this paper we shall consider principally the congenital type. The exact cause of congenital torticollis is not known. There are several theories as to its origin. Intra-uterine pressure is thought by some to be the cause. Other attribute it to birth injury, in which the sterno-mastoid muscle is ruptured during delivery, causing a hematoma with subsequent fibrosis, thereby becoming shortened and losing its elasticity. While the sterno-mastoid muscle is usually the offending member, torticollis may be caused by abnormalities of the cervical spine, as for instance fusion of the occiput and atlas or between the atlas and axis—and in treating any case of torticollis, an X-ray should always be made of the cervical region.

Acquired torticollis may be due to tuberculosis of the cervical veterbra, to cervical adenitis, or it may be of nerve origin in the so-called spasmodic type which usually presents itself in the form of a tic.

SYMPTOMS

In congenital torticollis there is rarely any pain. The patient's head is turned toward the affected side being pulled over by the sterno-mastoid muscle and the chin is tilted upward and outward away from the affected side. The sterno-mastoid muscle of the affected side is tense and cord-like. There is practically always a rather marked assymetry of the face on the affected side. This condition becomes more apparent after operation, but usually improves following operation. If neglected, scoliosis develops in torticollis.

In acquired torticollis there is often pain, depending, of course, upon the cause, whether tuberculosis of the cervical veterbra, cervical adenitis or some nerve lesion.

The pathology of congenital torticollis is principally a fibrosis of the sterno-mastoid muscle. At times both muscles may be involved. As stated above there may be a congenital fusion of the occiput to the atlas or the

atlas to the axis. A cervical rib may be the cause. The spinal accessory nerve may be involved. Sometimes the posterior muscles of the neck are involved. The pathology in acquired torticollis is, of course, the pathology of whtaever the underlying cause may be, such as tuberculosis of the cervical vertebra, cervical adenitis or possibly a tumor.

The diagnosis of torticollis is usually not difficult. The important thing being to differentiate between congenital and acquired and to determine by X-ray examination whether there is involvement of the cervical vertebra; whether one or both sterno-mastoid muscles are involved; or whether there is some nerve lesion. The differential diagnosis between the acquired and the congenital torticollis should be made on the history of the case, the physical examination, the absence or presence of pain—there being no pain usually in congenital torticollis.

TREATMENT

Here we shall consider only the treatment of congen tal torticollis and here the usual condition found is a fibrosis of one sterno-mastoid muscle. The muscle is cord-like and inelastic. The patient's head is turned to the affected side, the chin points upward and outward away from the affected side, the face on the same side is atrophied and flat. On the unaffected side the face is normal. In early childhood it is possible that manipulation and massage may help in correcting the condition. However, usually an operation is necessary. The operation consists of cutting the affected muscle "or muscles" and open operation should be done and not a subcutaneous sectioning of the muscle that may result in serious injury to vital structures in the neck. The operation consists of a transverse incision into one of the folds of the neck over the muscle affected and the entire muscle should be cut, being careful to cut the fascia as well as the fibers attached to the clavicle. The operation itself is not particularly difficult. Following the operation the patient should be placed flat in bed with the head turned in the opposite direction from which it was before operation and supported by sandbags. In a few days with the head placed in this position, i.e., opposite from what it was before operation, a plaster cast should be applied including the head, neck and chest. It is always well to have photographs made of the patient before operation in order that one may be sure, after operation, which way to turn the head and chin. This cast should be worn for four weeks and after this a brace can be made which is much more comfortable and serves the same purpose. The brace should be worn for several months, depending somewhat on the progress the patient makes and improvement noted.

The results are not always uniformly good although in the majority of cases of congenital torticollis where there is no involvement of cervical vertebra and if the operation is not delayed until permanent bony changes have taken place, very satisfactory results may be expected.

DISCUSSION

CHAIRMAN BRENIZER: Gentlemen, you have heard Dr. Roberson's paper, and this paper will be discussed by Dr. A. R. Shands, who is Professor of Orthopedic Surgery at Duke University, Durham; and following Dr. Shands, I will ask Dr. Coleman, from Richmond, to discuss this paper in the place of Dr. Hugh Thompson.

Dr. Shands. (Applause)

DR. A. R. SHANDS (Durham): Mr. Chairman and Members of the Surgical Section: I have greatly enjoyed Dr. Roberson's paper. I had the pleasure of seeing the first case with him. It was a perfectly beautiful result and he certainly deserves to be congratulated.

This condition of congenital torticollis is certainly extremely uncommon. As an example of the rarity, in looking through the records of the Duke Hospital for the four years it has been open, about 36,000 patients have been seen without a single case of congenital torticollis.

It is seen of course much more often in crippled children's hospitals but even in these institutions it is not common.

The actual surgical procedure in the correction of the condition is not difficult. The muscle is divided most often at its sterno-clavicular attachment. Occasionally, it may be divided at its attachment to the mastoid process. Some European surgeons have advocated a "Z" type of lengthening.

The after care is very important. After the child has come out of the immobilization splint or plaster put on immediately after the operation, some type of brace should be used to maintain the corrected position. During this time daily massage should be given to the muscles with stretching of the head in the over corrected position. Exercises should be insisted on principally for posture, to develop the muscles of the back, and also of the neck.

The conditions are very prone to recur if they are not carefully followed. They are similar in this respect to club feet. It is relatively easy to correct the club foot, but if they are not watched through a period of several years, they will certainly relapse.

The etiology is very interesting and has not been definitely proven. Dr. Roberson has emphasized the idea of hemorrhage in the muscle tissue. There might be some type of ischemia present with a comparable condition to Volkmann's ischemic paralysis following bad elbow fractures. It may be due entirely to a lack of normal development in the muscle. (Applause)

CHAIRMAN BRENIZER: The next gentleman to discuss this paper is Dr. Coleman, from Richmond, who is a neurological surgeon. (Applause)

DR. COLEMAN: I have had very little experience with the congenital type of torticollis, an experience confined perhaps to two or three cases. I have followed Dr. Roberson very closely in his explanation of the

etiology, and of the type of operation by which he secured good results in the case quoted.

I have been somewhat interested in acquired painful spasmodic torticollis, and have operated upon fourteen cases for this trouble. I think four or five things stand out rather conspicuously in this condition.

First, they are always considered as neurotics; second, no cause is known for the condition; third, operation must be extremely radical; fourth, months are required for maximum results in any form of operation; and fifth—and I could speak more feelingly about this—they are most difficult personalities to handle.

The simple operation for spasmodic torticollis is one of considerable antiquity, perhaps hundreds of years, in which the nerve to the external mastoid muscle was cut. Now, this was a very good beginning in the surgical treatment of spasmodic torticollis, and is always a part of every operation that I know of in existence today.

The selection of cases for operation is very important and somewhat difficult. If the spasms overflow from the neck into the face, and into the upper extremities, if they are not a fixed type, operation is likely to be disappointing.

Another test which we have found to be a very practical one as indicating inoperability, is whether or not the patient will stand a plaster cast for the correction of his deformity. If he does, we feel that he is a proper subject for operation.

If they do not, and we have never seen one who does, provided he had a very strong spasm, we feel that they roughly are grouped into the type requiring operation and further study.

These patients usually develop a tremendous neck muscle. It is a rather striking thing that most people that break their necks have big necks, and most people with this have big necks. I have often felt in the case of fracture, that the spasm of muscle had something to do with furthering a dislocation, which was set into operation by displacing force.

But leaving that aside, in 1924 I operated upon the first case of spasmodic torticollis by the radical method. Before that, Dr. Curshman in Kansas had reported a case in which they had cut the first, second and third nerves on one side, along with the spinal accessory. He intimated at that time that if you could break the contraction by cutting the posterior, instead of the anterior motor roots, that the spasm would disappear.

Well, I thought of this suggestion, and I had a case in my state of a man who weighed 270 pounds, had a most violent type of torticollis, which interferred with his shaving, and with his driving a machine. I cut the upper five posterior motor roots.

Dr. Dandley proposed a method of cutting the upper three motor roots on both sides.

I believe that if any operation is to accomplish anything, it must put out of action the upper part of practically all spinal rotators. Although the external mastoid stands out very conspicuously, as sharing in the

spasm, it is so much more easy to demonstrate this muscle than it is the deep rotators in the back of the neck; but they are all equally involved.

Torticollis is a very difficult condition, and our experience with these cases has been about as satisfactory as any of the neurological operations that we have.

CHAIRMAN BRENIZER: There was a committee asked to report as a Nominating Committee, their suggestion of a Chairman for next year. That Committee was Dr. Bulla, Dr. Sweaney, and Dr. Moore.

Their suggestion of a Chairman for next year is Dr. B. C. Willis, of Rocky Mount.

. . . Dr. Willis was elected unanimously. . .

CHAIRMAN BRENIZER: This next paper is taking the place of the usual so-called Chairman's Address. It is to be given largely by an internist, Dr. R. F. Leinbach, from Charlotte, and some follow-up results by Addison Brenizer. (Applause)

DR. LEINBACH: Mr. Chairman and Gentlemen: I should like to say at the outset that it is a great pleasure for me to have this opportunity of speaking to the Surgical Section of the State Medical Society. It is a privilege that I have never had before.

I ask your attention for a few minutes to the subject of "Compression of the Spinal Cord, and Its Surgery."

Compression of the spinal cord is encountered in two forms: an acute form and a chronic form. The acute form is observed almost invariably as a result of trauma, presenting itself as one phase of the so-called fracture-dislocation syndrome. While there is still some difference of opinion on the subject, yet on the whole traumatic compression of the spinal cord is generally an inoperable condition. The surgeon will, as a rule, approach the case of fracture-dislocation of the spine with the presumption that the cord is so badly damaged as to make operation futile and will, therefore, refrain from operation unless very good reasons why he should operate can be set up.

Exactly the contrary is the case in chronic cord compression. Here, it may be said that when the condition is properly diagnosed and the location of the lesion accurately determined, operation becomes obligatory. There are few exceptions to this rule. The condition has no natural tendency to disappear and progressing, as it almost invariably does, to its full development produces a tragic picture of paraplegia, anesthesia, vesical and rectal incontinence. If successfully operated upon, the results are gratifying and dramatic.

Compression of the spinal cord is to be regarded as a condition rather than a disease. In the chronic form it is the result of a disease process. The nature of this disease process may be, and often is, unknown at the time of operation. The surgeon, therefore, operates for a condition, learning the nature of the lesion perhaps only after the cord has been uncovered.

Compression of the cord is brought about by (1) encroachment from outside on the space normally occupied by the cord in the spinal canal. This may be by some neoplasm derived from adjacent bone, cartilage, meninges, blood vessels or nerve roots, or, it may be by a tumor of granulomatous or inflammatory nature; (2) it may be the result of an expanding lesion within the cord itself producing compression of the fiber tracts of the cord by a process of expansion from within, instead of constriction from without, as in neoplasms of intra-medullary origin; (3) the syndrome may again be produced as a result of congenital defects, or (4) as a result of an acquired inflammatory localized meningitis, the most common type of which is syphilitic leptomeningitis, in which case the cord is constricted in an anular fashion.

Compression of the cord due to any of these chronic causes may occur at any level, at almost any age, and has no significant predilection for either sex. In the brief time allotted me, it is possible to deal only sketchily with the subject. I proceed at once to the important matters of diagnosis, usually contributed by some one with neurological experience.

Symptoms are usually of slow development. Pain may or may not be present. When present, it is usually consistently localized in the distribution of one or more nerve roots, and is the result of pressure or other influence of the tumor on these sensory roots. Pain when present is highly suggestive of the location of the lesion, but not of itself decisive. The pain is described as boring, aching, tearing, or burning, never lancinating. It is characteristically aggravated by anything which raises the intra-spinal pressure, as by coughing, sneezing, or straining at stool. It may be severe enough to reduce the patient to morphine addiction months before the condition is diagnosed. In some cases pain may be absent, but regional paresthesias of numbness or tingling may be present. Paresthesia is of less localizing value than pain, and in my opinion bears more relationship to pressure on the spino-thalamic tracts than to pressure on nerve roots. I cannot prove this and others may disagree.

The usual motor symptoms are paraplegic in type, and depending on the stage of evolution may be simply weakness in the legs, inability to walk without the aid of crutches or when supported, or total inability to support the body weight on legs, or ultimately total loss of motion in the lower extremities. If the constriction is high and located above the second dorsal segment, symptoms in the upper extremities may appear. Detrusional bladder difficulties are common, proceeding as matters get worse to retention and incontinence. Sensory defects are usually not complained of by the patient and may pass unnoted until objective tests are made. The evolution of these symptoms may be exceedingly slow, measured at times in years, though usually in months.

When the condition of cord compression has once been suspected, it becomes necessary to prove its existence and to determine the level at which it has occurred. A painstaking neurological examination then becomes necessary and must be repeated daily until all doubt in the mind

of the examiner has vanished. Whereas, in lesions of the brain the patient is studied for lateralizing signs, by which we mean contrasting neurological signs in the lateral halves of the head, trunk and extremities with reference to a vertical median antero-posterior plane, in compression of the cord the patient is studied with reference to a transverse horizontal plane, below which level all abnormal findings may be assembled and above which all findings are normal. This is known as the establishment of a "level." It will be readily seen that for a considerable extent of the dorsal region of the cord, motor and reflex findings have little localization value and sensory symptoms become our chief reliance. In fact sensory defects become our most important findings for localization, and if accurately determined, verified and re-verified, are quite dependable.

In the early stages sensory changes may be confusingly indefinite. All qualities must be studied. In one case epicritic sensibility may be severely impaired, with preservation of deep sensibility; in another case the reverse may be true. In general, defects of light contact, pain and temperature sensibility are of greatest value. Inasmuch as tests of sensation invariably involve a subjective factor, the examiner must be scrupulously careful, thorough, and persevering in order that he make no error. In seeking a level the examiner should search for the lowest level of preserved sensibility rather than for the highest level of anesthesia. These levels should be the same, but the case is not always so simple.

Paraplegia, usually of the spastic type with clonus and inverted plantar reflexes, changes in the deep reflexes, vesical disturbances and bladder disturbances have little of localizing value, occurring with lesions in all levels of the cord above the lowermost.

Level signs having now been established more or less definitely, the case is to be differentiated from a number of other diseases in which symptoms and physical signs may be confined in more or less degree to the lower part of the body. We may mention such diseases as multiple sclerosis, combined sclerosis, syringo-myelia, multiple neuritis affecting chiefly the lower extremities, thrombosis of spinal vessels, syphilitic or otherwise, transverse myelitis. All of these conditions can without great difficulty be differentiated.

By lumbar puncture important differential findings between compression of the cord and other conditions are established. About 1922 the Queckenstedt test, a simple procedure of the highest value, was introduced. It is based on a simple fact of normal physiologic mechanics. This fact is that simultaneous compression of both jugular veins will raise sharply the cerebro-spinal fluid pressure in the ventricles of the brain and secondarily in the subarachnoid spaces of the spinal canal in a normal individual. If a manometer is connected through a lumbar puncture needle with the cerebro-spinal fluid in the cord, the initial pressure therein may be read. Compression of the jugular vein on each side of the neck is then made simultaneously. If the canal is unblocked, the fluid in the manometer rises freely to two or three times its pre-compression level. On release of

this jugular compression the fluid falls equally promptly to approximately its former level. If the spinal canal is blocked at any point above the lumbar puncture needle so that the subarachnoid space below the point of compression becomes a cul-de-sac, no rise of the fluid level in the manometer can be brought about by jugular compression. The test, therefore, yields a dependable demonstration of the existence of spinal block above the level of the needle, not below. If the canal is only incompletely blocked, a rise of pressure may be obtained but it is slow and step-like, and the fall on release of pressure may be equally slow and step-like. It is necessary in doing this test to be sure that the point of the needle in the subarachnoid space shall be free and not blocked by contact with any tissue. This may be determined by compression of the abdomen with the flat of the hand. Even in total block pressure in the cul-de-sac can be raised by abdominal compression. If sufficient care is used, therefore, the test should not be misleading.

In a considerable number of cases after spinal block has existed for a sufficient length of time, the spinal fluid in the cul-de-sac becomes more or less yellow in color (Xanthrochromia) and the proteins in the fluid increase, giving rise to the phenomenon of spontaneous coagulation of the spinal fluid. This, again, is of confirmatory value but it is never necessary to wait for the appearance of this phenomenon since the Queckenstedt test was introduced.

A further means of exact localization of the point of block is afforded by the use of iodized oil, introduced by cisternal puncture. In this procedure the iodized oil gravitates by its own weight from the cisterna magna to the point of obstruction. The X-ray, then, defines for us the point of arrest. We have not used this procedure in any of the cases operated in Charlotte. There are certain objections to its use, resting chiefly on the fact that the oil remains in the subarachnoid space for a long period of time and has the effect of a mild chronic irritant. Theoretically one should be able to introduce iodized oil by lumbar puncture and by inversion of the patient demonstrate the lower level of the block which presumably should be as satisfactory to the surgeon as the demonstration of the upper level. We have tried this method of demonstrating the lower level by lumbar injection of oil in several cases, both with uniformly successful result. Whether or not iodized oil by cisternal puncture will or will not be used in a given case will necessarily depend on the degree of confidence and certainty which the examiner reposes in his neurological findings. Iodized oil by cisternal puncture is in any event a valuable accessory means of establishing the operative level in doubtful cases.

Tables published by Dr. Adson of the Mayo Clinic show that in approximately 400 cases, twenty-five per cent of tumors producing compression of the cord are located extra-durally, that about fifty per cent are sub-dural, but extra-medullary, and that about twenty-five per cent are intra-medullary. This gives us an average probability of finding

at operation that the tumor (if it be a tumor) will be removable three times out of four. Indeed, even if the tumor is found to be intra-medullary, there remains still a possibility of helping the patient by operation through the method of dealing with intra-medullary growths introduced, I believe, by Dr. Elsberg of New York, which method Dr. Brenizer will probably define for you.

While it is true that chronic compression of the spinal cord by tumor or other non-neoplastic lesions is not very common, still I have had the opportunity of seeing eleven cases in as many years, an average of one a year. The results of surgery in these cases, of which seven were operated upon by Dr. Brenizer, three by Dr. Frazier in Philadelphia, and one by Dr. Dandy in Baltimore, have been highly gratifying. In two cases only was the tumor of malignant nature. One of our cases was a total failure. Although the level symptoms were most sharply defined, the point of obstruction was not found. The tumor may have been intra-medullary or possibly at a higher level than indicated by the symptoms.

While cases of chronic cord compression are not frequent, as I have already indicated, some will necessarily develop from time to time in this State. Their plight becomes more and more deplorable. I trust that if a patient with slowly advancing paraplegia is encountered by anyone of you that you will consider the possibility of chronic cord compression and the potentialities of surgery in its relief.

COMPRESSION OF THE SPINAL CORD—ITS SURGERY

By Dr. R. F. Leinbach and Dr. Addison G. Brenizer, both of Charlotte

In offering my reinforcement to the paper of Dr. Leinbach, I wish to state that between October 3, 1927, and September 1, 1932, he has offered me seven cases, which through his neurological findings, spinal block (Queckenstedt test), X-ray and lipiodol injection, he had already located the spinal segment involved by the lesion. With the spinal segment already found it is necessary for the surgeon to keep in mind certain relations of the bodies of the vertebrae and the spinous processes to the level of the segment of the cord involved. For example in cases 1 and 2 the spinal segment was located by Dr. Leinbach between the 9th and 10th dorsal segments and the 11th and 12th dorsal segments, respectively.

It is known that the 10th dorsal segment lies opposite the body of the 8th dorsal vertebra and the 12th dorsal segment opposite the body of the 9th dorsal vertebra, but due to the obliquity of the spinous processes of the dorsal vertebra, the spinous process of the 8th and 9th almost overlap the body of the vertebra below.

In finding the bony or surgical level of the spinal or neurological level a few points, in general, as to the relations of the segments to the vertebra must be kept in mind.

In the uppermost cervical region, the origin of the nerve roots from the cord is on the same level as their point of exit from the spinal canal. The lower the nerve root, the greater the distance between its point of origin from the cord and its point of exit from the spinal canal.

In general, the lower boundary of the cervical cord (the level of the eighth cervical nerve) corresponds to the interspace between the fifth and sixth cervical spinous processes; the twelfth dorsal segment lies about opposite the ninth dorsal spine; the fifth lumbar segment corresponds to the twelfth dorsal spine. The segments of the spinal cord therefore lie on a higher level than the corresponding vertebrae. The fourth cervical segment lies about opposite the third cervical spine; the fourth dorsal opposite the second dorsal spine; the eighth dorsal opposite the fifth dorsal spine; the twelfth dorsal opposite the ninth dorsal spine; the second lumbar on the level of the tenth dorsal spine; the sacral segments opposite the twelfth dorsal and first lumbar spines. It must be well understood that the lower the level of the segment in question, the greater the distance between it and the correspondingly named spinous process.

I propose to describe briefly and illustrate merely the operative findings, the pathology and the final results in these seven cases.

Case 1, lesion at 9th to 10th dorsal segments. Surgical level 8th dorsal vertebra. The 7th, 8th, and 9th spinous processes were identified, they and the laminae removed unveiling an internal, extra-dural meningocele pressing obliquely between the 9th and 10th dorsal segments. Pathology: Internal meningocele.

In Case 2 lesion at 11th to 12th dorsal segments. Surgical level 9th dorsal vertebra. The spinous processes and laminae of the 9th, 10th, and 11th dorsal vertebrae were removed, the dura opened and a tumor loosely attached to the arachnoid was found over the right side of the 12th dorsal segment. Pathology: Glio-sarcom, encapsulated.

In Case 3 the lesion was located at the 5th dorsal segment. Surgical level 3rd dorsal vertebra. Spinous processes and laminae of the 2nd, 3rd, and 4th dorsal were removed and on the level of the 3rd dorsal vertebra was an extra dural mass, resembling granulation tissue which bled easily. This mass was cut and curetted away. The dura and cord bent sharplý to the left around this mass. The dura was opened and the arachnoid remained intact and could be seen to swell and fill with the cerebro-spinal fluid on respiration. Arachnoid opened and cord clear.

Pathology: Diffuse extradural sarcom with prominent endo-theliomatous characteristics. Dr. Raymond Thompson reported adhered, suspicious.

In case 4, located at 7th and 8th dorsal segments. Surgical level 6th dorsal vertebra and exposed under the 6th, 7th, and 8th dorsal laminae. X-rays had shown destructive process. Spinous processes and laminae of 6th, 7th, and 8th dorsal vertebrae removed. These structures were soft, adherent to dura.

Dura cleaned and opened. Arachnoid and cord found normal except dilated vessels below obstruction. Pathology: (Decalcified) osteo-chrondroma showing cellular content and the cartilaginous element greatly predominant. No malignancy seen in specimen.

In Case 5 lesion located at 5th dorsal segment. Surgical level 3rd dorsal vertebra, exposed under spinous process and laminate of 2nd, 3rd, and 4th dorsal, opposite body of 3rd dorsal vertebra. Opposite 4th dorsal vertebra there was a drawing in and thickening of the dura. Phenolphthalein in lumbar puncture was recovered by hypodermic needle below this point but not above. Fluid flowed more readily from needle by compressing jugulars. Dura opened and cord exposed. There was a grayish white area covering surface and extending within the cord. Not removed. Diagnosed without pathology. Scarring from pachymeningitis or fibroglioma.

In Case 6 lesion located at 1st and 2nd dorsal segments. Surgical level 7th cervical and 1st dorsal. Spinous processes and laminae of 1st, 2nd, and 3rd dorsal uncovered. Intra-medullary tumor intimately adhered within cord, opposite 7th cervical and 1st dorsal vertebrae. Not removed. The cord should have been incised and case reoperated for possible extrusion of tumor.

In Case 7 lesion located at the 9th dorsal segment. Surgical level 7th to 8th dorsal vertebrae. Spinous processes and laminae of the 7th, 8th, 9th, and 10th removed and opposite 9th dorsal segment, there was a dense friable granulomatous epidural growth. Tumor removed, fluid was clear and not xantho-chromatic below and above this level and flowed equally as well below on compression of jugulars. Dura opened and arachnoid and cord found normal. Pathology: Granulomatous tissue containing giant cells, probably syphilitic.

The summary of these seven cases shows but one not relieved of the spinal compression. In this case an intramedullary tumor was not removed. Five of these cases are quite well and show an excellent result, one who died after eighteen months from metastasis and cachexia was able to walk about and received this much benefit during eighteen months.

As to diagnostic methods the most important were: (1) the history, (2) Queckenstedt test, proving block before operation and unblocked after operation, (3) determining the neurological and surgical level, (4) X-rays where there was a bony involvement in two cases, (5) lipoidal injection by lumbar puncture was of little aid due to uncertainty of movement of the oil, (6) replacement of spinal fluid with air (encephalography) was not used in these seven cases.

Chairman Brenizer: This next paper is on tumors of the jaw, and specifically, Adamantinoma, by Robert H. Crawford, of the Rutherford Hospital, Rutherfordton, North Carolina, and it will be discussed by Dr. Donnell B. Cobb, Goldsboro, and Dr. Deryl Hart, of Durham.

ADAMANTINOMA

By Robert H. Crawford, M.D.
Rutherford Hospital, Rutherfordton, N. C.

Adamantinoma or adamantine epithelioma is a cystic or solid tumor of dental origin and was first described more than a century ago. Numerous authors have written about this condition and the literature contains many excellent descriptions of this interesting tumor. At first it was thought to be somewhat rare but we now know that it is found more frequently, and in the larger clinics many cases are treated. Bloodgood reported 12 cases in 1904. Steensland collected 21 cases in 1905. Dean Lewis reported 70 cases in the literature in 1910. In an excellent paper by Murphy in 1924, 100 cases were collected. Kegel in 1932 reported 35 cases from the Johns Hopkins Hospital.

These tumors present themselves in the maxillae, although a number have been described at the base of the brain and five authenticated cases in the tibia. The inferior maxilla is the most usual site although the superior maxilla is often invaded. The new growth starts within the bone and increases expansively, often bursts through and by continuity involves surrounding tissues. In Bloodgood's twelve cases—four projected from the alveolar border of the jaw, and eight were situated in the body of the jaw. Cystic tumors, slow in growth, are found principally in the lower jaw and solid tumors, more rapid in growth, in the upper jaw. The size of the tumors reported varies markedly—the average about as large as a lemon. Ewing reports one as large as a child's head. Chibret's case was the size of the head of a full term foetus.

The age incidence is from 6 to 75 years. Scudder states that it is a tumor of young adults 20 to 40, and that it occurs twice as often in females. Massin reports an adamantine epithelioma in a new born infant. Females appear to be more frequently affected than males.

Broca in 1869 published the results of his studies of maxillary tumors containing epithelium to which he gave the name of "odontoma." He considered that the tumors originated from "dental germs." Dentine and cement are of mesenchymal origin, the enamel is of ectodermal origin. "As the tooth grows its root, which is made up of four layers of cells, viz: 1—inner enamel layer, 2—an intermediary layer, 3—the enamel pulp, 4—an outer enamel epithelium, tapers off into the part containing it and disappears. The enamel cells down in the root cease to form enamel. Certain groups of these cells remain in the embryonic jaw and are known as cell-rests or epithelial rests."

Malassez in 1885 contributed a classical study and was the first to describe and illustrate the cell masses and to discuss their histogenesis. Surrounding the roots of normal teeth Malassez found columns of epithelial cells originating from the enamel organ and scattered along the borders of the teeth from apex to crown. These cell masses Malassez called "paradental epithelial debris." The columns of cells are divided into three groups: 1—superficial, 2—intermediate, 3—deep—the last being con-

nected with the enamel organ. About the enamel organ Malassez found groups of cells which showed transitions between cylindrical enameloblasts, round cells and stellate cells.

Galippe states that epithelium taking part in tooth formation may be compared to a gland with the enamel the secretory product. The cells of the enamel organ become specialized, also the gland acinus. The peripheral cells become cylindrical and the central cells become star-shaped. Enamel is the only part of the adult tooth of epithelial origin. In animals which have numerous dentitions, the epithelial cells remain, forming new teeth as they are needed. In man, after the enamel is formed these cells atrophy. After extensive proliferation it is hardly to be expected that all of the cells should entirely disappear. Malassez has demonstrated remnants of them in the foetus and infant between the gingival epithelium and the series of adamantine organs in the gubernaculum of the unerupted tooth of the child and about the roots of the teeth in the adult.

When the superficial epithelial debris proliferates the tumor may contain flattened cells, cuboidal cells or polyhedral cells with or without intercellular bridges, or all of these. If the deeper epithelial debris proliferates the tumor may contain enameloblasts or stellate cells and sometimes enamel, dentin and cement. "As the connective tissue is normally stimulated by proliferating epithelium it is therefore found in varying amounts in adamantine tumors, acting as stroma for the epithelium. In some tumors the stroma comes to overshadow the epithelium resulting in a sarcoma-like neoplasm. In a single tumor the epithelium may be composed entirely of one of these types, or it may be of all types, one or the other type predominating."

There are three main points of view regarding the origin of adamantinoma.

1. Paradental epithelial debris (Malassez and Galippe).

2. The discovery of direct connection between the oral epithelium and adamantine epithelium suggests that these tumors may have their origin in the oral epithelium.

3. The third view that adamantinomata arise by neoplastic transformation of the tooth germ, while the follicular cysts and dentigenous cysts result from cystic degeneration of the same was suggested by Newman and Magitot. Malassez's study and illustrations appear to be generally accepted and offer the best solution relative to the origin of adamantinomata. Wohl states "Microscopic sections show cells of the adult type corresponding to the cells of forming enamel and dentin; arrangement is in long string and gland-like structures, the latter sometimes presenting dentin formation in the lumen of the gland-like masses. Intact basement membrane is always found, sharply demarcated by cell masses and gland-like structures from surrounding connective tissues. There always occurs somewhere in these masses some of the characteristic stellate cells. The great variation of cells found in adamantine tumors will differentiate them from endothelioma, in which the cells are of uniform

shape and type." Carnathan reports: "Cellular overgrowths from the cyst wall may give the picture of spindle cell or myxosarcoma (Albarran) and it is probable that by exaggeration of this process apparently pure sarcome may arise. The epulis of adamantinoma presents a fibrous mucoid of giant-cell sarcomatous stroma with supporting cords and groups of epithelial type." He reports a case in which a tumor in the upper jaw was diagnosed "spindle cell sarcoma." A year later, the patient had a tumor in the lower jaw diagnosed "adamantinoma, epulis type." Reviewing the sections of the first tumor in the upper jaw no malignancy could be proven.

Hassler has shown that common epulis is usually connected with a granuloma of the dental root.

Adamantinomata vary greatly in structure but in order to be classified as adamantine epithelioma they must contain cell groups which resemble those present in some stage of development of the enamel organ.

Clinical features: Adamantine epitheliomata occur chiefly in adults, although they have been observed in youth. Usually a long history, recurrences may present themselves after an interval of 5 to 8 years. Infection, trauma or irritation and extraction of a molar tooth often precede the tumor formation. Women are apparently more affected than men. The tumors may attain great size and have a parchment-like covering which crepitates upon palpation. The mucous membrane is smooth, not ulcerated like a malignancy. Tumors of the upper jaw may invade and fill up the antrum, orbit and naso-pharynx. The tumors are considered benign and never metastasize to the lymph nodes unless due to malignant recurrences. Ewing reports two cases in which metastases were found in cervical nodes, Holden and Gray—"The behavior of these tumors is similar to that of basal-cell carcinoma, that is, they do not metastasize but persistently recur unless completely destroyed." Bloodgood states that adamantine epithelioma is a very low grade of malignancy.

CASE REPORTS

Case No. 1: Mrs. W. C. R., white, age 49, admitted to Rutherford Hospital, Rutherfordton, N. C., May 13, 1924. Tumor size of small lemon filling entire vault of mouth, base in hard palate. Onset 20 years ago—increased in size slowly. The tumor has a firm consistency and there is no ulceration of the epithelium.

Clinical diagnosis: Adamantinoma involving hard palate.

The tumor mass was removed at operation by Dr. Henry Norris, assisted by the writer on May 14, 1924.

Pathological diagnosis by Dr. C. C. Norris, Laboratory of Obstetrical and Gynecological Pathology, University of Pennsylvania. "Adamantinoma of hard palate." (Micro).

On May 28, 1924, the base of the lesion was treated directly with a dental mold of radium tubes and 444 MCH given. At this time there appeared a crater in the hard palate, approximately 2 cm. in diameter.

August 5, 1924: Patient returned for observation and while the crater was the same size there was no evidence of recurrence of the growth.

June 18, 1929: After operation and radium in 1924 for an interval of five years there was no recurrence of the tumor.

Six weeks ago the patient noticed a recurrence in the left side of the hard palate and the mass has grown rapidly and become ulcerated. Clinical diagnosis: Recurring tumor of hard palate, previously diagnosed adamantinoma, now looks to be malignant (?).

At operation, on June 19, 1929, the tumor mass was removed by the writer. Irradiated afterwards with radium.

Pathological report by Dr. C. C. Norris, Laboratory of Obstetrical and Gynecological Pathology, University of Pennsylvania: "Adamantinoma, recurrent." (Micro).

Macroscopic description: "Specimen consists of two pieces of tissue each 2x1 cm. excised from the roof of the mouth and undergoing a process of degeneration which macroscopically suggests a malignant type."

Two and a half years later, January 12, 1932, patient was readmitted to the hospital with a recurrence in the hard palate and a polypoid growth in the left nares. Both growths were removed at operation by the writer and the case of the tumor in the left hard palate treated with radium.

In May, 1932, the patient was referred to Dr. F. E. Motley, the Charlotte Eye, Ear and Throat Hospital, on account of an extensive recurrence of the new growth in the roof of the mouth with extension to the left antrum and nose.

June 8, 1932: The left external carotid artery was ligated by the writer, preparing the patient for operation by Dr. F. E. Motley, Charlotte, N. C. In exposing the external carotid artery, left, two enlarged lymph nodes were encountered and were removed for pathological section on account of suspicion of metastatic growth.

Pathological report from the Laboratory of Obstetrical and Gynecological Pathology, University of Pennsylvania—Dr. C. C. Norris, "Adenitis." (Micro).

Report of Dr. F. E. Motley, the Charlotte Eye, Ear and Throat Hospital, Charlotte, N. C.

Complaint: There is a large, extensive growth involving the left cheek causing marked protrusion of the left side of the face. There is a very foul odor to the breath. There is considerable blocking of both nares with great difficulty in swallowing. The patient has constant pain around the left side of the face accompanied by a dull headache. This growth has been present for slightly more than eight years. There have been eight operations at various intervals during the last eight years.

Examination: There is a large perforation in the palate which involves practically all the hard palate and part of the soft palate. The growth involves both antra and ethmoids and has practically destroyed the septum. Both naso-antral walls are practically destroyed and the entire maxilla on the left with the soft tissues of the face on the left invaded by

this new growth. There are almost no upper teeth and the lower teeth are few and not in very good condition. Both ears are normal. Biopsy and X-ray taken.

Diagnosis: Malignant.

Note: Exact diagnosis deferred until report from biopsy is returned.

Opinion: If this condition is of sufficient low grade malignancy, ligation of carotid artery with radical removal of the growth might help a great deal. If there has been an increase of malignancy of the growth, it would be unwise to do any surgery.

May 18, 1932, X-ray report, 4284: P. A. sinuses: Frontals—both are considerably thickened. The ethmoids—both sides are markedly clouded throughout, the left side shows marked destruction of bone along the inner wall of the orbit and the nasal antrum wall suggesting a malignancy. Antra—both maxillary sinuses are markedly clouded throughout, suggestive of polyps.

June 8, 1932, operation: Left carotid ligation by Dr. Crawford at Rutherfordton.

June 17, 1932, operation: Moure operation. The left upper maxilla was practically removed en block. Because the vision was not disturbed and there was no gross involvement of the left orbit, it was felt wise to leave the eye intact. Small remnants of tissue were destroyed by electrocoagulation. Septum and both naso-antral walls were removed. Large pack of gauze impregnated with tincture of iodine was packed in the cavity and two hundred millicuries of radium were used. Dr. Robey made a dental appliance shortly following the operation which set the hard palate up against the soft palate and greatly facilitated the dressings and added greatly to the comfort of the patient.

September, 1932. Note: There is no odor at this time and no pain. The patient can eat well, very active, and can do all her own work and help about the farm. Great change in disposition—she is once again happy and can associate with her friends where formerly she was ostracized from society. There is no sign of recurrence at this time.

April 25, 1933—Dr. F. E. Motley's report:

April 25, 1933, operation: This patient shows some recurrence around the inner canthus of the left eye and the pathological report showing that the grade of malignancy was increasing, it was felt wise to remove the eye. Complete evisceration was done with partial removal of the lid and wide removal out into the zygomatic region was done. Again radium was used—1,000 millicuries. Patient did not do well on the operating table and survived the operation by a very narrow margin although there was no great amount of hemorrhage.

July 1, 1933. Note: Patient comes in at this time with two small areas of recurrence along the soft palate. Electrocoagulation used and destruction by dissection was attempted of these small areas.

May 1st to 16th, 1933: Readmitted to Rutherford Hospital for postoperative irradiation with radium.

August 19, 1933: Small recurrences within the large open wound in left face treated with radium.

September 17, 1933: There is present a recurring growth about the border of the left upper gum. Implants of radon advised.

January 20, 1934: The recurring new growth about the outer border of left upper gum is the size of a small pecan.

Treatment: Two gold implants of radon inserted into the tumor mass.

April 16, 1934: Condition progressing satisfactorily. No recurrences of growth seen. General health good.

Case No. 2: G. R. L., male, white, aged 66. Referred to Rutherford Hospital for post-operative irradiation with radium following removal of tumor mass from right lower jaw one month ago by Dr. A. G. Brenizer, Charlotte, N. C. The tumor of the right lower jaw began six years ago and grew slowly until it attained considerable size.

Note from Dr. A. G. Brenizer: "I have removed, with difficulty, a growth of the enclosed description from Mr. Lattimore's mouth and jaw. This growth has been present for six years, seen by Bloodgood four years ago. It was secondarily invaded from mouth with channels through it and infected. The X-ray shows multiple cystic formation with very little bone support."

Pathological report No. 30,212 (77A) by Dr. L. C. Todd, Charlotte, N. C. "Frozen section: A neoplastic growth, epithelial in type, probably derived from the enamel organ or from a dentigenous cyst. Permanent section: (decalcified in tri-chlor-acetic acid). Above diagnosis is essentially correct. Adamantinoma. Enamel organ tumor. Locally infiltrative but ordinarily does not metastasize. Good prognosis with complete local excision."

Examination shows a large, robust, elderly man with marked enlargement of his right lower jaw. There is a huge open cavity in the mandible extending beyond the angle of the jaw from which a tumor mass was removed by Doctor Brenizer. There is no macroscopical evidence of recurrence of the tumor.

Treatment: External irradiation with radium.

December 16, 1930: Tumor mass in right lower jaw and mouth markedly better and decreased in size. Additional external irradiation with radium given.

February 5, 1931: The mass in the right lower jaw and mouth is smaller. Patient feels better. A third treatment of external irradiation with radium used.

April 14, 1931: The patient states that radium has benefited his condition very markedly and the mass in his right jaw and mouth is two-thirds smaller than formerly.

Additional external radium given.

October 9, 1932: After about 18 months the patient returns to the hospital with a recurrence of tumor formation about the gum, front of lower right jaw near midline, the size of an English walnut.

Diagnosis: Recurrent adamantinoma.

Treatment: Six gold tubes of radon each 1.92 MC. in strength implanted in tumor mass.

December 5, 1932: The tumor mass in the right lower jaw and mouth is recurring and patient is given additional external irradiation with radium.

The patient was examined at the hospital in April and May of 1933 and was progressing satisfactorily. The latter part of June, 1933, the jaw looked larger and additional external irradiation with radium given.

In October, 1933, he again returned to the hospital and was much better. During January, 1934, he reported for observation and is getting better. There remains a large cavity in the body of the right lower mandible and patient keeps same cleaned out as well as possible. The deformity is scarcely noticeable and he is free of pain and continues his regular occupation.

Case No. 3: Mrs. J. M. B., white, married, age 50. First admission to Rutherford Hospital December 18, 1932.

Twenty-one years ago patient first noticed a lump about the size of a lima bean between her left lower gum and tongue. During a period of 13 years the new growth increased slowly in size. No pain. "Tumor felt firm and patient often bit into it by accident." Eight years ago the new growth was removed at operation under general anesthesia in another hospital and the doctor thought it would not return.

Four years ago the tumor recurred in the left lower jaw and caused pain and patient was advised to have it removed, but did not do so. Her general health was good. The new growth of the left lower jaw continued to increase in size slowly and involved more of the jaw bone. All of the patient's teeth had been removed 18 years previously.

The tumor involving the left lower jaw spread to the chin and underneath the chin there was a large, tense mass. In August, 1931, the mass underneath the chin was incised and a large quantity of pus evacuated. Almost immediately afterwards she was admitted to the Aston Park Hospital, Asheville, N. C., and the lower left jaw operated by Drs. H. S. Clark and J. A. Sinclair. One month later a second operation was performed by Dr. H. S. Clark. The patient did well until June, 1932, and a third operation was performed.

Pathological report by Dr. Alfred Blumberg, Asheville, N. C.: "Several small pieces of tissue rather fragile in character and blood tinted in appearance were examined. Microscopic examination shows a connective tissue matrix within which numerous lobulated cells are deposited. In addition, many pus cells are embedded into fibrous material, adherent to the matrix. There is no evidence of tumor tissue or inflammatory giant cells, neither is there any evidence of malignancy." Examination at Rutherford Hospital on admission, December 18, 1932: The patient is a fairly well nourished, middle-aged, married woman complaining of a tumor mass

of her lower jaw. M. M. fair color. No icterus nor general glandular enlargement.

Head—the lower jaw—especially in front about the chin—and the left half present a picture of an extensive tumor formation. All teeth have been removed years ago. Looking inside the mouth, the tumor formation about the mid-line of the lower jaw juts out underneath the tongue and involves a considerable portion of the floor of the mouth. About the gum-line, especially on the left side there are areas in which the tissue looks similar to granulation tissue. The tumor mass infiltrates the jaw bone—which is very thick. Most of the growth is covered over by buccal mucosa and there are healed scars of former incisions. The tumor mass in the floor of the mouth is hard and firm.

X-ray films of the head reveal a large amount of bone destruction in the lower jaw—especially on the left side. There is a pathological fracture at the angle of the left lower jaw.

Tentative Diagnosis: Adamantinoma undergoing malignant degeneration (?).

Treatment: Ligation of the external carotid artery to be followed by irradiation with radium advised and accepted.

December 19 1932: Left external carotid artery ligated and followed with large dosage of radium to left lower jaw and chin. Discharged from hospital December 23, 1932.

March 12, 1933: Patient readmitted to the hospital for additional radium treatment. There is yet present extensive tumor formation of the chin and floor of the mouth. The tumor formation in the left lower jaw is much better. External irradiation with radium given.

June 18, 1933: Patient is readmitted to the hospital and presents a huge recurrent tumor mass of the chin and floor of the mouth. The left lower jaw appears to be doing well.

Clinical dianosis: Large, recurrent adamantinoma of chin with extension into floor of mouth.

Operation: June 18, 1933: Incision made on buccal side between lip and remains of gum directly over central portion of the large tumor mass. The tumor mass is cystic and quantities of gelatinous material evacuated. The bony structure of the chin is practically destroyed—the bone is soft and only a shell of same remains. A large cavity remains and a drainage tube is inserted through the skin underneath the chin for drainage.

Pathological report by Dr. Wylie D. Forbus, Duke University Hospital, June 20, 1933: "Microscopically this is a tumor which may be grouped morphologically among the tumors which are designated as cylindromata. This term is applicable to a great variety of tumors which have a peculiar microscopic morphology. It is advisable not to use it except in this sense. Most of the tumors which are described as endotheliomata are really cylindromatous in structure. Many carcinoma also show a similar morphology. The mixed tumors of the salivary glands may also be spoken of as cylindromata as is often done. As far as we can determine

from an investigation of the literature the tumor under consideration falls best in the group of the mixed tumors which occur so commonly in relation to the salivary glands and also which are frequent lesions in the neck beneath the mucous membranes, in the orbit, on the face and in numerous other places about the head. One of the most interesting features, microscopically, is the peculiar cylindromatous character. This may be described as consisting of cylinder-like strands of cells which resemble epithelium, but which have been described by many as endothelium. These cells vary a great deal in their shape and in their size but their cytoplasm which is a peculiar fibrillary type is almost universally continuous with the long cylindrical mass of peculiar fibrillary and gelatinous or mucoid material which lies adjacent to the columns of cells and which is so characteristic of the tumor. One may find adequate reference to the literature dealing with this tumor in Kauffmann's Lehrbuch der Speziellen Pathologischen Anatomie. Useful references are also listed in Ewing's Neoplastic Disease. In both Kauffmann's and Ewing's book the tumor will be found described under the general heading of endotheliomata. Tumors such as the one under consideration are generally of a benign character and when removed completely do not recur. They often grow, however, to quite large size—as much as 10-12 cm. in diameter and they produce extraordinary disturbances because of pressure—interference of blood supply, etc. In view of the fact there is recorded in the clinical history the unusual growth of this tumor we would appreciate very much any subsequent information which may be obtained in connection with the case."

June 25, 1933: Discharged from hospital today. Convalescence uneventful. Drainage tube removed.

March, 1934: Patient returns for observation. There is no evidence seen of any tumor formation of the chin, floor of the mouth or left lower jaw. Surprisingly enough the contour of the chin is normal in appearance. The patient is very happy over the results obtained in her chin and mouth. At this time she complains of pain in the abdomen and states that for several months at her home she has felt badly. Her general health has failed.

Abdominal examination: There is a marked enlargement of the liver—numerous nodules can be palpated and the liver edge is stony hard. Undoubtedly there is present a very extensive metastatic malignancy of the liver. I am unable to account for this metastatic growth in the liver. The patient returned to her home.

Case No. 4: C. B., white, age 13. Admitted to Rutherford Hospital on November 5, 1930. Patient has a very firm growth on right lower jaw which has been present for four years. Has spent many months in other hospitals for treatment. After radium and deep X-ray therapy the tumor mass became very much smaller. This year the tumor returned and the recurrence is very extensive.

Examination on admission to Rutherford Hospital: Patient is a well nourished boy, 13 years of age. There is present a huge tumor formation

of the right lower jaw extending well behind the ramus and producing a large swelling of the right face. The new growth is nodular, densely adherent to the bone and there is a discharging sinus on the outside of the face. The last molar is protruding directly into the mouth. The tumor mass extends behind the angle of the jaw into the nasopharynx and displaces the tonsillar pillars.

November 10, 1930: Biopsy by Dr. M. H. Biggs: One nodule is removed under nitrous oxide and pathological report by Dr. C. C. Norris, Laboratory of Obstetrical and Gynecological Pathology, University of Pennsylvania: "Chondrofibroma." (Micro).

December 13, 1930: Operation by Dr. M. H. Biggs, assisted by the writer. Facial artery ligated as a preliminary step to control hemorrhage. The large tumor mass was removed in toto. The anterior nodules are cartilaginous—one is fused to the maxilla and is removed with a chisel. Further back in the tumor mass, the nodules are marble size, calcareous and numerous. Incorporated with them is one molar tooth which is removed. When all fragments are removed there is left a deep cavity with bony walls which gives the impression that the process may have originated as a dentigerous cyst (?). The edges of the covering mucosa surrounding the growth are removed and the entire specimen forwarded to the laboratory for examination.

Pathological report: Dr. C. C. Norris, University of Pennsylvania: "Chondrofibroma, right lower jaw." (Micro).

December 22, 1930: Convalescence was uneventful and patient was discharged from the hospital today.

In a letter from the patient dated April 20, 1934, he states that he is getting along fine. No further trouble or recurrence of growth. General health excellent.

Case No. 5: Miss W. M., white, age 52. Admitted to Rutherford Hospital December 3, 1932. Patient states that she has had a tumor in the roof of her mouth for at least ten years. Recently the mass has grown considerably in size and a few days ago she noted an ulcerated area. Yesterday she had a rather large hemorrhage from this ulcerated area.

Examination: Patient is a rather thin, middle-aged woman, 52 years of age. Mouth—In the roof of her mouth, more on the left side than the right, there is a large, extensive tumor formation about one-half the size of a guinea egg. There is an ulcerated area from which the patient states she has had a rather severe hemorrhage. No bleeding now. The mass is hard and firm and suggests an adamantinoma undergoing malignant degeneration (?).

December 4, 1932: Operation by the writer. The rather large tumor mass is dissected out and removed in toto. There remains a raw surface about the size of a half dollar—the hard palate is intact. Bleeding is controlled by gauze packs. Patient stood operation well.

December 7, 1932: A dental mold is prepared so that radium tubes can be placed directly against base of new growth.

December 8, 1932: Convalescence uneventful. Discharged today.

In a letter from the patient dated April 24, 1934, she states that she has had no recurrence of the tumor—has gained 18 pounds in weight, and is very grateful.

CONCLUSIONS

Adamantinomata having their origin in paradental epithelial debris may well be caused by infection, trauma or irritation. These tumors are much more frequent than reported and small ones pass unnoticed. When they have attained considerable size they may appear clinically to be malignant. Complete removal by operation is the treatment of choice and offers excellent results. Frequently complete removal is impossible and in these cases radium therapy is of great help in keeping recurrences under control. Radon implants and large doses of radium decrease the size of the tumors and the more or less normal contour of the face is maintained.

DISCUSSION

Chairman Brenizer: There are two gentlemen to discuss this paper on "Adamantinoma," Dr. Donnell B. Cobb and Dr. Deryl Hart. Dr. Cobb! (Applause)

Dr. Cobb: Mr. Chairman and Gentlemen: Dr. Crawford wrote me and asked me to discuss this paper, and I wrote him and told him that I couldn't, because I didn't know anything about it, and he said, "That is just too bad, because your name has already gone in to discuss it."

However, I am not going to make it too bad for you gentlemen. I am going to leave this discussion for some of you who have had personal experience with this tumor. As far as I am concerned, I haven't seen a case since I completed my interneship.

I do want to congratulate Dr. Crawford on the series of interesting cases that he presented to us, and to congratulate him on the very excellent results that he got with it.

Chairman Brenizer: Now, the next gentleman to discuss this paper is Dr. Deryl Hart. Dr. Hart! (Applause)

Dr. Hart: Mr. Chairman, and Members of the Society: Dr. Crawford has covered the subject of adamantinoma so well, I think, that there is nothing further to be said along that line. He has also presented an excellent series of cases, and shown excellent results.

You all know, and he has very well shown, this marked tendency of these tumors to recur. The only possibility of curing them, I think, is to get them fairly early, when they are small enough so that they can be completely excised.

After they have reached an advanced stage, a large size, and invaded the tissues extensively, as he has already brought out, their total removal is so deforming as to make it almost prohibitive to carry it out.

As I say, I don't think there is anything to add to Dr. Crawford's paper, but I thought that I might mention briefly the cases which we have had at Duke Hospital. We have had four cases there in four years, an average of about one case per ten thousand patients that came in.

We have not been so fortunate as Dr. Crawford in our cases. The first was a colored man, twenty-seven years of age, who gave a history of having had his tumor for seventeen years. It was on the lower jaw, began as a small nodule, reached a considerable size, and seven years before he came in, it was pushing out the lower lip and gums of the lower jaw.

He received radium treatment, the mass sloughed out, and following this he had complete relief of the tumor for a period of three years.

Then the mass returned, grew gradually for two years time, at which time it became ulcerated, and it grew somewhat more rapidly. During the years that it was ulcerated he had repeated hemorrhages.

Then he came into the hospital with a tumor described as about the size of a grapefruit hanging from the lower jaw. He was in quite poor condition. He was brought into the hospital for treatment and transfusions, to build him up, and died ten days after admission. Autopsy showed a bilateral pneumonia.

The other patient was a forty-year old woman who gave a history of having had a tumor in the middle of the roof of her mouth for twenty years. She had been operated on ten years previously. At the time she came in the growth was so large that she could barely swallow, and she could not breathe very well.

This tumor extended into the palate and into the soft palate, and quite far down into the pharynx. This tumor was so extensive we felt that she couldn't breathe, so we did a tracheotomy in preparation for the operation. This tumor was removed, and in the operation enough tissue was left, after removal, to cover the space. That tissue had been stretched out so that there was enough soft tissue left to close the palate, and this patient made a very satisfactory recovery.

I might say that both of these cases—the first at autopsy, and the pathological study—diagnosed as adamantinoma, showed typical multicystic tumors with large solid areas of growth composed of strands of epithelial cells having characteristic appearance.

The third case was a man forty-nine years of age, who gave a history of having a swelling in the roof of his mouth for nine months. This showed a tumor of four to five centimeters in diameter, which was firm and rubbery in consistency. X-ray showed a crowding of the antrum but there was no evidence of bone involvement.

Some of the tissue was removed, and showed a typical appearance of adamantinoma. This patient refused operation, said he wanted to go to a hospital near his home; he was sent there, stayed in that hospital a day, I understand refused operation there, and so far as I know has not been operated upon.

Another case came into the hospital rather recently, and showed a tumor of two or three years duration. She did volunteer the information that when she pressed on it, she could get this crackling sound, due to the thinned out bone. X-ray showed a multilocular cystic tumor, which was diagnosed from the X-ray as adamantinoma, but on that case we do not have a microscopic section.

CHAIRMAN BRENIZER: Gentlemen, you have heard the paper of Dr. Crawford. Is there any further discussion? Are there any questions that you would like to ask the author?

Don't become restless, because we have made good time here. The time of the section has still to run for an hour and a quarter. We were late in beginning, and in justice to the men who always come later in the program, I think if you remain and listen you will receive an enormous amount of benefit from it.

The next paper is "Congenital Hypertrophic Stenosis," by Dr. Donnell B. Cobb, of Goldsboro. Dr. Cobb!

CONGENITAL HYPERTROPHIC PYLORIC STENOSIS

By DONNELL B. COBB, M.D., M.S., F.A.C.S., Goldsboro, N. C.

Congenital hypertrophic pyloric stenosis is one of the most interesting diseases of early infancy. No other affection responds to treatment with more spectacular success. In this condition the normally soft and pliable pyloric region is occupied by a sharply defined tumor mass of firm, almost cartilaginous consistency. These tumors are covered with smooth, glistening peritoneum, are of a paler color than the adjacent stomach and duodenum and on palpation feel much as a small uterine fibroid. They are olive-shaped and vary in size from that of the distal phalanx of the little finger to that of the thumb. Pathologically these masses are composed of a massive hypertrophy of the circular musculature of the pylorus. This marked muscular overgrowth elongates and greatly narrows the pyloric lumen. An associated spasticity and edema increases the stenosis and results in a mechanical barrier to the outlet of the stomach. A small pyloric mass may obstruct the passage of food just as completely as a large one, and the severity of the symptoms are in no way related to the size of the tumor.

Etiology. The exact cause of this muscular overgrowth remains obscure. The condition frequently has been found at birth and within a few days after birth. There are several instances where it has been demonstrated in a seven-months foetus. Thus it is generally accepted to be due to a developmental hyperplasia of the circular pyloric muscle. It occurs much more often in male infants, the percentage being about eighty-five per cent in boys and fifteen per cent in girls. It has been estimated by Downes that one in every two hundred male infants are affected.

Diagnosis. If the condition is kept in mind the diagnosis may be made promptly in almost every case. It is not a matter of opinion, but

is a demonstrable fact. No laboratory tests or special procedures are required. The entire clinical picture is due to the obstruction at the pylorus caused by the spasticity and edema supra-imposed upon the muscular hypertrophy. The symptoms and signs are just what would be expected in this state of affairs. The infant, as a rule, appears normal at birth. During its first few days or few weeks it leads a natural life. At the end of this time the hypertrophied muscle becomes spastic and the contents of the stomach no longer being able to pass onward into the duodenum, the infant begins to "spit up" its food. This regurgitation soon develops into the characteristic explosive, projectile vomiting, the vomitus at times being thrown two or three feet. The pylorus being tightly closed at this stage of the disease, the vomitus never contains bile. As a result of the inability of the food to pass from the stomach into the intestines the latter are empty. The bowels fail to move, not from constipation, but because they contain no residue. Or if they do move the passage is meconium-like, being composed chiefly of mucous and bile. The urine becomes scanty and the infant rapidly emaciated and dehydrated. If this condition persists gastritis develops from the retained and decomposed food, and the vomitus may contain blood.

On examination the child usually appears apathetic. The skin is dry and inelastic and the eyes sunken. After the ingestion of food the outline of the dilated stomach can be visualized. One can see the peristaltic waves passing across the stomach from left to right to fade away against the impassable pylorus. Frequently two or three such waves may be seen traversing the stomach at the same time.

Among the numerous authors who have written on this subject there exists a difference of opinion as to the ease and importance of palpating the pyloric tumor. Monihon states that the tumor "can always be felt." Donovan believes that to palpate the tumor "is pathognomonic of this condition" and states that "we do not operate upon these children until we feel the tumor." On the other hand, however, Cochran writes that it is "not unusual" to fail to palpate this tumor and expresses the opinion that "a palpable tumor as a symptom is negligible." Strachner in a report of forty-eight personal cases says that "palpation of the abdomen is usually negative." He has "been unable to palpate a tumor mass, and when it is recalled that the liver of the normal infant occupies two-fifths of the abdominal cavity, quite completely covering the stomach, we can readily understand why the tumor is not felt. This in spite of the common statement to the contrary, recalling the time when the chronically inflammed appendix was reported as being frequently palpated. Even with the abdomen open the pyloric tumor is only palpable by hooking the finger up under the liver." In my own experience I have never felt the pyloric tumor and I believe the diagnosis is easily made without it.

The X-ray, while not essential in arriving at a diagnosis, is, at times, helpful. With its use it is possible to obtain a very definite idea of the completeness of the obstruction and the amount of gastric retention.

Differential Diagnosis. For practical purposes the only condition which greatly resembles hypertrophic pyloric stenosis and which calls for sharp differentiation is pylorospasm. Here one must consider the points of resemblance and the elements of difference between the two. It should be borne in mind that both conditions are due to an overaction of the circular muscle at the pylorus. In pylorospasm this muscle is not thickened, while in congenital hypertrophic pyloric stenosis it is several times its normal thickness. The severe symptoms, such as projectile vomiting and constipation develop much earlier in pylorospasm (often in the first week of life) than they do in congenital hypertrophic pyloric stenosis. The picture of obstruction, however, develops much more fully in the stenosis cases, reaches a greater severity and progresses more rapidly.

It is because of the close similarity between these two conditions that medical treatment is always tried first. This usually consists of frequent gastric lavage, the administration of atropine, the giving of thick feedings and re-feeding after the stomach has been emptied by lavage or by emesis. Such a course greatly benefits the cases of simple pylorospasm and aids more than anything else in differentiating them from true hypertrophic pyloric stenosis. Medical treatment could not be expected to materially benefit the cases affected by a massive overgrowth of the pyloric muscle. Here the obstruction is chiefly mechanical in nature and consequently is best overcome by a mechanical attack.

Treatment. Monihon is of the opinion that if medical treatment "is carried out conscientiously for a few days, and the child only just retains its weight, or loses slightly, it is better not to persist with this method but to resort at once to surgery." It must be remembered too, that prolonged medical treatment almost invariably results in weaning the infant. And since Goldbloom has shown that "the mortality after operation in artificially fed babies is three times that in the breast fed," no treatment is admissable that involves taking a breast-fed baby off the breast. According to the experience of Downes an early operation in this condition reduces the mortality in half. The operative procedure is quick and simple, the results certain and permanent and permit of early feeding. Appropriate in this connection is Deaver's dictum regarding appendicitis that "the time to operate is as soon as the diagnosis is made." Medical treatment is justified only so long as it is necessary to differentiate this condition from pylorospasm.

Preoperative Preparation. Early operation is always most desirable in cases of hypertrophic pyloric stenosis, but these cases do not constitute emergencies. Adequate preoperative preparation is essential and is the most important factor in keeping the mortality low. These infants are usually very much dehydrated and fluids must be supplied in comparatively large amounts. This can be accomplished effectively by giving normal saline and glucose solutions subcutaneously and intravenously. In the greatly debilitated a blood transfusion is beneficial. The stomach should be kept empty by frequent lavage. This enables the previously

dilated stomach to regain its normal size and tone and favors the subsidence of any gastritis that might be present. By removing this retained material and preventing its passage into the intestines at the time of, or subsequent to, the operation, the likelihood of postoperative enteritis is lessened. The variable periods of starvation that these cases have passed through make them below par in every respect. They must be kept sufficiently warm. The aphorism that "an adult can be treated as a child but a child can not be treated as an adult" should be kept in mind constantly when dealing with cases of congenital hypertrophic pyloric stenosis.

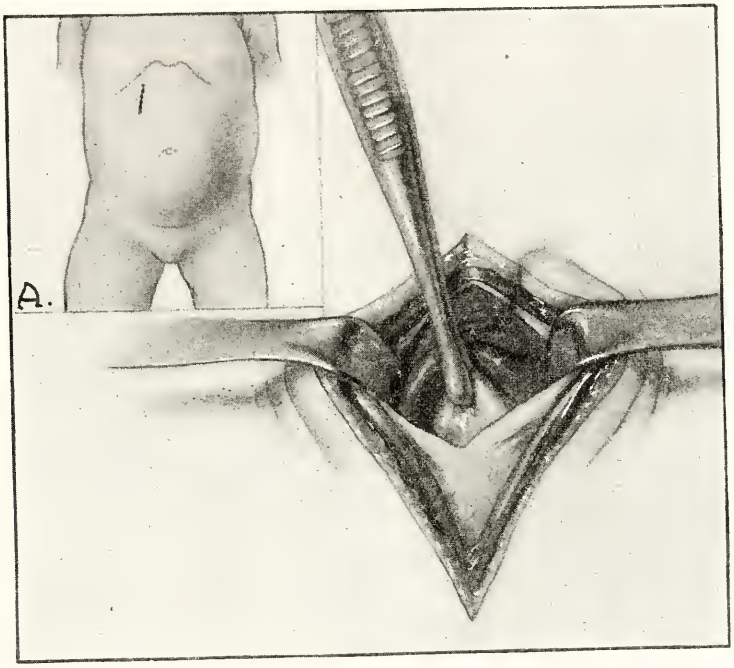

Fig. 1.—Right rectus incision. The peritoneum is incised in the upper two thirds of the incision only, so that nothing is exposed but the liver. Smooth tissue forceps pushes the liver upward and grasps and delivers the stomach and pylorus. Insert A: The location of the incision is determined by the liver margin and not by the costal margin.

Operative Technique. Formerly numerous operations were carried out for the relief of hypertrophic pyloric stenosis. These consisted of posterior gastro-enterostomy, pylorectomy, various forms of pyloroplasties and dilatation of the pyloric canal through an opening in the stomach. A mortality rate of fifty per cent made these procedures almost prohibitive and they now have been superseded by Rammstedt's operation. This is one of simplicity, efficiency, and brevity and is being used with a mortality of less than three per cent.

These infants are fragile material for any operative procedure; every means must be employed to conserve their vitality. While on the operating table they should be exposed as little as possible and their body temperature should be preserved by surrounding them with hot water bottles.

This operation can be done with general or with local anesthesia. When the proper incision is used it also can be done without any anesthesia—and this without straining and evisceration and without shock. The avoidance of local infiltration permits of better healing. A small piece of

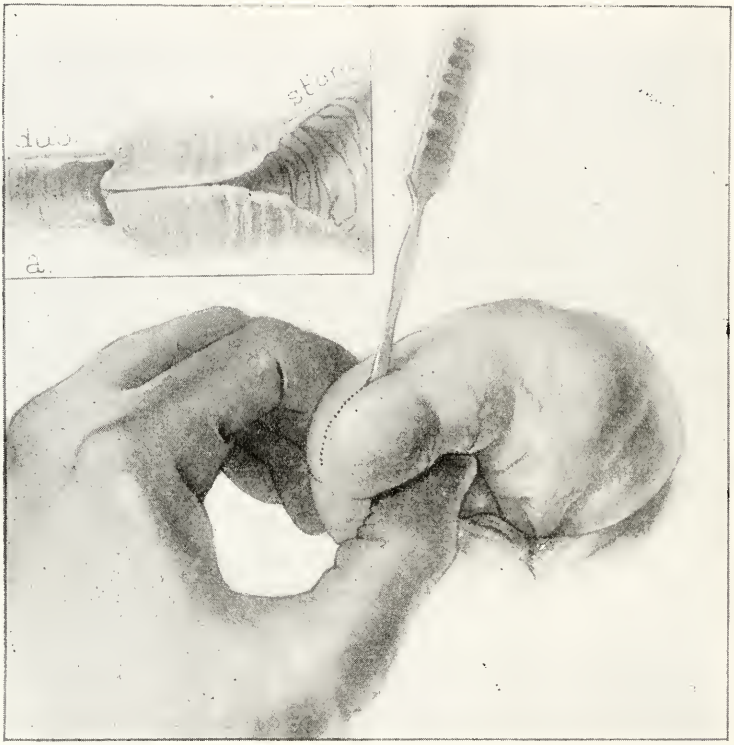

Fig. 2.—Pylorus is held firmly and incision made with blunt instrument through avascular area. This incision extends through the outer muscle fibres only. Insert A: Note projection of tumor into duodenum. Caution must be used not to incise into the sulcus and thus open the duodenum.

gauze filled with powdered cracker crumbs and sugar, moistened with water containing a few drops of brandy, makes an efficient pacifier on which the baby can suck throughout the operation. With such entertainment the child will go through the entire procedure with but one or two short cries.

A right rectus incision 4 c.m. long is used. In making the incision it is not the costal margin but the edge of the liver that is the important land-

mark. The skin, anterior rectus sheath and rectus muscle are incised to a point about 1 c.m. below the liver edge. The posterior rectus sheath and peritoneum are incised only for the upper two thirds of the incision, so that when the peritoneum is opened there is nothing in view but the liver. This is a most important step in the operation. The large right lobe of the liver prevents evisceration and its accompanying severe shock, it greatly facilitates closure of the incision and it offers a definite protection against postoperative hernia. With a pair of smooth tissue forceps the edge of the liver is pushed upward, the pyloric end of the stomach grasped and the pylorus exposed and delivered. (Fig. 1). Holding the pyloric tumor firmly between the thumb and index finger of the left hand

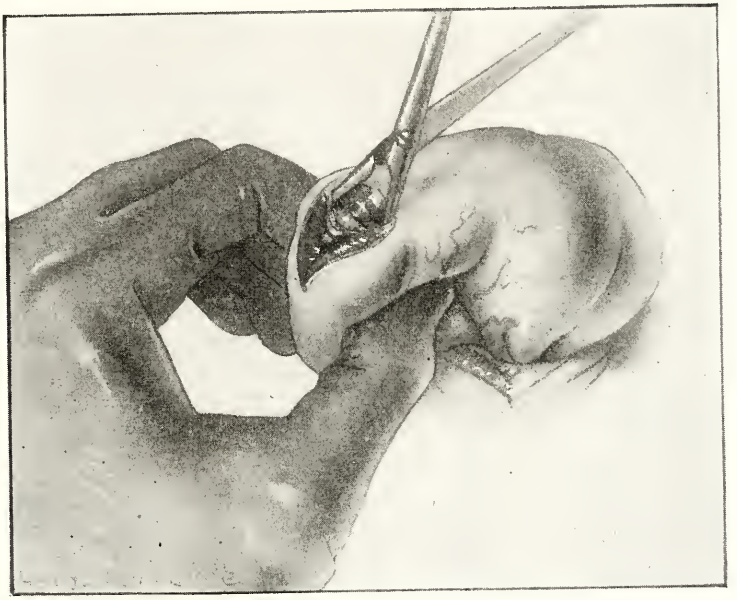

Fig. 3.—The points of a small hemostat separate the remaining muscle fibres. This separation should begin on the stomach side and proceed toward the duodenum. All fibres should be separated.

a longitudinal incision 1.5 c.m. long is made along its anterior surface in the area of few blood vessels. This incision passes through only the peritoneal covering and about one half the thickness of the hypertrophied muscle. At this point it is most important to remember that the pyloric tumor ends abruptly on the duodenal side and projects into the duodenal lumen much as a miniature cervix projects into the vagina. The sulcus thus formed and lined by duodenal mucosa might be opened accidently unless extreme caution is used. For this reason a knife should not be employed to make this incision. The hypertrophied tissue is very friable and readily falls apart under slight pressure made by a blunt edge instru-

ment. (Fig. 2). The remaining un-cut muscle fibers are separated by spreading the points of a small artery forcep. The pyloric tumor merges gradually into the musculature of the stomach. Working, therefore, on the stomach side of the tumor a line of cleavage between muscle and mucosa is easily obtained and makes it possible to separate the muscle fibers toward the duodenum without the accident of puncturing the duodenal mucosa. It is essential that all muscle strands be separated so that the mucosa bulges freely into the incision throughout the length of the tumor. (Fig. 3).

Bleeding, when it occurs, can usually be controlled by hot compresses. Occasionally a small silk stitch might be necessary or a piece of rectus muscle can be placed over the bleeding point. These infants will not tolerate the loss of blood and it is essential that all oozing be controlled.

This incision into the pyloric musculature is left gapping open and it is unnecessary to place any omentum over it. The pylorus is returned to the peritoneal cavity and the abdominal incision closed in layers.

Postoperative Treatment. These infants should be returned to a warm bed. As before operation saline and glucose injections may be repeated. A dram of brandy given in a small saline retention enema is effective in preventing and combatting shock. A small amount of water may be taken by mouth immediately. These infants are eager for food and it should not be withheld. Milk may be administered by a medicine dropper as early as two hours postoperatively. Breast fed babies may be put to the breast the same day. As a rule they nurse vigorously and gain weight rapidly. In long standing cases in which the stomach is much dilated there may be some spitting up of food for a few days until the stomach has regained its normal tone.

COMMENT

The more recent literature contains a number of articles describing hypertrophic pyloric stenosis in adults. Judd and Thompson report a series of twenty such cases. Strachauer, Crymble and Walmsley have encountered this condition in adults and believe it to be of congenital origin. Brown points out that "the strongest argument in favor of surgical intervention, even in mild cases, is the permanence of the tumor when treated by other methods." Cases have been reported in which these tumors remained unchanged after medical treatment and after gastro-enterostomy. It would seem, therefore, that to persist in medical treatment after the diagnosis of hypertrophic pyloric stenosis has been established would be to only prolong the symptoms and to postpone an unavoidable operation. With the Rammstedt operation the incision through the pyloric tumor leaves the circular muscle without origin or insertion. It undergoes disuse atrophy and the pyloric tumor disappears. Wollstein, in a study of twenty-three specimens removed in from twenty-four hours to two years after operation has shown that the condition is cured by operation and states that "healing is brought about by the cells of the serosa and submucosa, but the unstriped muscle cells take no part in

the process. The wound in the pylorus is healed within nine days. The pylorus has become relaxed within two weeks. The stomach has returned to normal size within a month and the gap between the cut ends of the muscle coats has practically disappeared in six weeks. In two years only a thin line of connective tissue fibres separate these two muscle ends and the stomach is quite normal."

CONCLUSIONS

1. In the present state of our knowledge the exact cause of hypertrophic pyloric stenosis is not known other than it is a congenital hypertrophy of the circular muscle at the pylorus.

2. The cardinal symptoms are projectile bile-free vomiting and visible peristaltic waves.

3. The diagnosis should not be deferred on account of inability to palpate the pyloric tumor.

4. The failure of hypertrophic pyloric stenosis to respond to medical treatment is the chief means of differentiating this condition from pylorospasm.

5. The Rammstedt operation offers a certain, speedy and permanent cure.

6. The operation can be safely and readily done without any form of anesthesia.

7. Procrastination and inadequate preparation result in a high mortality.

DISCUSSION

Chairman Brenizer: Is there any discussion on this paper?

Dr. Glenn R. Frye (Hickory): His findings, I think, are something that will be very beneficial to all of us.

We have recently had two of these cases, and what Dr. Cobb has said about this condition has certainly worked out in those two, and that is the early beginning, and the fact that both were males—one four weeks and one seven weeks.

It happened, and I don't think I imagined it, that in these cases they both had a palpable tumor. Both were in rather extreme conditions, and after preliminary treatment and operation, by the type of operation that he described, both were able to take breast feeding the same day, and made uneventful recoveries.

I think Dr. Cobb has certainly given us a most excellent paper. (Applause)

Chairman Brenizer: Is there any further discussion?

Dr. T. C. Bost (Charlotte): As he pointed out these children are under par and they don't stand much so that I think it is most desirable to operate on these patients under local anesthesia. In that way they get off to a much better start as they don't have the gastro-intestinal

irritation and disturbance which you sometimes see with a general anesthetic.

About four years ago I had a series of cases, five within ten days, typical cases such as Dr. Cobb has described with typical tumor. In this series all coming along together I worked out what I thought was a technique that certainly to me was a big improvement.

This technique was to make this incision very high, as Dr. Cobb describes, perhaps a little higher than he described, so that you come down well above the lower margin of the liver, and then slightly retract the liver, and at the same time have your patient in a Fowler position, putting the chest and head up on a couple of pillows, so that there is considerable dropping of the abdominal contents and then the operation can be very easily done and the abdominal incision is much easier closed.

Chairman Brenizer: Is there any further discussion?

Dr. Deryl Hart (Durham): I would like to report one case that I had of this type of thing. I have had between twenty and thirty operations, and I suppose only about half of them with palpable tumor.

However, the thing I wanted to mention was the case of an adult, a girl from the State of North Carolina, operated on in Baltimore about 1922. I was an assistant in the operation, and she was on my ward at the time I was an interne.

She gave a history of having vomited from the time of birth until she came to the hospital, and I doubt if she weighed more than fifty or fifty-five pounds, and certainly didn't weigh as much as seventy pounds. She was just skin and bones, and that was about all. Her family were rather ignorant people, and they said she had always been unhealthy, she had "indigestion" as they described it.

She was operated on, and we found a large tumor of the pylorus. It was thought that the tumor dated from the time of birth.

Following the operation, the patient developed a severe diarrhea, which could not be explained in any way except that she had suddenly had food poured into the intestinal tract. She got over this in the course of six or eight weeks, and her father told me a year later that she weighed one hundred and fifty pounds.

That tumor dated from birth, and was not operated on until she was about twenty-one years of age. (Applause)

Chairman Brenizer: Is there any further discussion?

Dr. Foy Roberson: I enjoyed Dr. Cobb's very fine paper, but there is one thing I want to ask him, that is very seldom brought out in these cases.

Be careful not to perforate the mucous membrane. The rest of the operation is simple, but when it is perforated, it is a right bad situation. I would like to know if in his cases he has had the misfortune to perforate any of these.

I remember one case that I had, that I wasn't quite satisfied that I had opened enough, had made sufficient opening, and I went a little bit further down. It is very thin there, and I perforated it.

Well, I sewed it up and put in a little rubber tissue drain. That went along for four or five days, and then developed a fistula. Of course, I was worried, and the pediatrician was worried. Well, it wasn't long before this child was eating, and then every bit of the meal would come out through that fistula, and we treated the case along for a time.

The thing cleaned up after a time, and then I took some adhesive and strapped that wound together, just pulled it together forcibly with adhesive, and finally the thing healed, and the child got well—and not so long ago somebody told me about having seen this child, and they said it was certainly a beautiful incision.

Well, the thing I would like to hear, and the thing that I think would do us all good—because that really is the key to the operation, the key to the end results, the pediatrician will make the diagnosis, but the real danger is going to come from the surgeon, I mean accidentally—would be to have that side of it discussed.

I would like to hear Dr. Cobb, if he has had any experience along that line, say what he would do. I wonder if it wouldn't be a good idea to close up the original opening, not try to repair the fistula in the mucous membrane, close up that opening and make another opening just above it.

Chairman Brenizer: Is there any further discussion?

Dr. Johnson: I would just like to mention that about a year ago, Dr. Kirkland and Dr. Harris reported a series of about fifteen or twenty cases of pyloric stenosis in adults. I think this article appeared in the *American Journal of Laryngology,* and in some of these cases the history was strikingly like that of ulcer, and I was quite surprised, as a matter of fact, that an ulcer could not be demonstrated.

Laryngologists thought there were two features which were fairly diagnostic of this thing in adults—all of these cases were in adults, needless to say. The two features were these, that the pylorus muscle was considerably lengthened, that instead of being a quarter of an inch, as in the normal human stomach, this pyloric muscle might be anywhere from a half to three-quarters, or even longer in length, and another thing was that the hypertrophied muscle projected into the duodenum very much as the cross-section of Dr. Cobb's muscle did.

So by virtue of these two laryngological signs, they were able to make a diagnosis of stenosis of the pyloric muscle in adults.

Chairman Brenizer: Is there any further discussion?

If not, I will ask Dr. Cobb to please close the discussion.

Dr. Cobb: I would like to thank the gentlemen for making the subject more complete by their discussion.

As Dr. Johnson brought out, there are an increasing number of articles appearing in the literature describing this condition in adults. And it would seem that at least some of these adult cases are due to the fact that the condition has existed since infancy.

As far as the injury to the duodenum is concerned, that Dr. Roberson mentioned, I have done that twice. I have tried to sew the muscle together, but it is so friable, and edematous that the suture would tear out. My means of repairing it has been simply to sew the mucosa transversely. I was fortunate enough not to have a fistula.

But it was on that account that I put the knife aside, and used this blunt-pointed instrument to make the incision.

I want to congratulate the other gentlemen on feeling this pyloric tumor. I must still admit I can't feel it. I have reviewed the literature, and the only other person who also admits he can't feel it is Dr. Strackhour, of the University of Minnesota. I took occasion to quote him very freely.

Thank you very much. (Applause)

Chairman Brenizer: The next paper is "Diagnosis and Treatment of Duodenal Ulcer Complications," by Dr. B. C. Willis, of Rocky Mount.

This paper is to be discussed by Dr. Robert H. Crawford, of Rutherfordton, and Dr. Hunter McG. Sweaney, of Durham.

DIAGNOSIS AND TREATMENT OF DUODENAL ULCER COMPLICATIONS

By Byrd Charles Willis, M.D., F.A.C.S.,
Surgical Service, Park View Hospital, Rocky Mount, N. C.

The treatment of all diseases should be based upon the physiopathological condition present. Normal anatomical and physiological relationships should be disturbed as little as possible, but if safety permits, the actual lesions should be removed.

No one treatment, however, is suited to all cases. Duodenal ulcer, also known as peptic ulcer, may exist and be symptomless or practically so. Diagnosis of typical ulcer is largely based upon the relation of food to pain which usually comes from two to four hours after meals and is relieved by more food or by soda; upon the seasonal incidence of spring and fall; four times as common in men as in women; and occurring more often between the ages of 20 and 40. It is common in clerks and in farmers. In this section the negro has it about as often as the white.

Gastric analysis shows high acidity in the great majority. In competent hands the X-ray will usually show the lesion by a permanent filling defect in the first portion of the duodenum since 95% of all ulcers are in the first half inch beyond the pyloric ring. The most common location is anterior superior wall.

Complications are perforation, (sudden or slow leak); hemorrhage (18 to 20%) with passage of blood in vomitus or stool, or both; pyloric

obstruction, or stenosis of the first portion of the duodenum; and periduodenitis.

Diagnosis of perforative duodenal ulcer is based upon the history; sudden abdominal calamity with board-like rigidity, shading from above downward; shock; subnormal temperature; rapid, weak pulse and agonizing, abdominal pain dulled only by large doses of morphine; absence of liver dullness in about 25% of cases. If the patient is X-rayed in an upright position an air line will be seen beneath the diaphragm in many cases.

Diagnosis of massive hemorrhage is based upon the history, vomiting and passage of blood, shock, subnormal temperature, weak, thready, rapid pulse. These patients complain of weakness and of a peculiar sensation in the epigastrium. Recurrence of the attack is easily recognized by the patient. Hemorrhage from this cause is considered potentially more fatal than from gastric ulcer.

Barium, for purpose of study, is not to be given during active bleeding. The X-ray must be used during a quiescent period, waiting 7 to 8 days.

Stenosis of the duodenum, or pyloric obstruction, is usually preceded by a long history of ulcer and persistent vomiting. But the X-ray may show only pyloric obstruction without definite ulcer.

Diagnosis of duodenitis is more difficult, largely determined by the history and by X-ray findings of a more or less rigid duodenum. Some duodenitis is associated with all ulcers. The ulcer may be superficial with large amount of round cell infiltration of duodenal wall.

There are four schools of thought regarding treatment. First, simple closure of ulcer and suturing of omentum over for reinforcement. Second, exclusion of the lesion by gastro-enterostomy with as little as possible done to the ulcer itself, merely closure. The third method is excision of the ulcer and repair of the canal by the Finney operation or by other modifications. The fourth is the more recent, radical procedure of resection of a large part of the pyloric end of the stomach. This is advocated by the German surgeons and adopted by many Americans.

Our operative experience includes 38 cases. There were 4 hemorrhages, 4 obstructions, 22 perforations, and 8 non-perforative. The ulcer was situated in first portion in 33 cases; posterior wall, 2 cases; combined anterior and posterior walls, 1 case; superior wall, second portion, 2 cases. Two patients, moribund on admission, died without operation.

Of the 6 deaths, 3 occurred in perforative cases, all with a rather severe peritonitis; 2 of these were considered moribund when operation was begun.

There were 2 deaths among the 8 non-perforative cases. Appendectomy and posterior gastro-enterostomy were done in both; in neither was ulcer excised. Operation was the probable cause of 1 death since it followed within a day.

The 6th patient to die had been operated upon elsewhere for perforative ulcer and was sent to Park View Hospital with pyloric obstruc-

tion and hemorrhage. He received medical care in the hospital for several days in the hope of improvement, but when hemorrhage and malnutrition became so severe that an emergency operation was thought necessary, a simple gastrostomy was done, with passage of catheter through the pylorus, well into duodenum, so as to make an avenue for nourishment. The mortality in the 38 operative cases was 16%. The mortality in the 22 perforative cases was 13.6%.

Many surgeons treat all acute perforative cases by simple closure, and their immediate mortality has been lower than by other methods, but a certain number of these cases must return for further operative procedure. It is surprising how many cases of acute perforation of duodenum will survive an operation in which mere closure of the ulcer and posterior gastro-enterostomy are done, but in a large series of such cases the mortality will be higher than after excision of the ulcer with transverse suture of the duodenum. This fact is due to confining the operative manipulations to a localized area in the latter operation and the spreading of infection to new fields in the former. The omentum normally shields the small intestine to a large extent. In doing a posterior gastro-enterostomy it is necessary to pull up the omentum, find the first portion of the jejunum, perforate the leaves of mesentery and open the lesser peritoneal cavity. This procedure would naturally entail an excessive mortality except for the fact that in the high acidity cases the bacteria are practically destroyed. However, in these few cases of low acidity, the germs are more virulent. In good surgery it is axiomatic not to spread or open up new fields for infection. We would not dare do such major surgery in the presence of colon infection. Many of these patients are left with crippling adhesions and, if they survive, must run the gauntlet of vicious circle, intestinal obstruction and later gastro-jejunal ulcer.

I believe the operation, if done, should be confined to those cases that show a definite obstructive lesion at the pylorus. In the past this operation was done for practically all ulcers of the duodenum and in many cases in which the ulcer could not be demonstrated. In a large number of these cases so treated it was later necessary to disconnect the gastro-enterostomy. The operation should never be done when the ulcer cannot be demonstrated.

The treatment of hemorrhage is optional—medical or surgical. Persistent hemorrhage, mild or severe, is very apt to recur, producing a severe anemia. In such cases the ulcer should be attacked directly; a simple gastro-enterostomy should not be done since it does not actually control the bleeding. It is true that a number of these cases will stop bleeding if the gastro-enterostomy functions well but there is no assurance that the hemorrhage will cease; therefore the ulcer should be excised in order to be sure of hemorrhage control. The deterrent to this operation is the dread of duodenal fistula. This has not occurred in our series and is probably not as great a risk as compared with the chance of gastro-jejunal ulcer in gastro-enterostomy. A quiescent stage is preferable for

operation; but if hemorrhage is not controlled by rest, morphine and transfusion, it should be done during a second transfusion, rather than delayed until the flow ceases or the patient dies of exsanguination. In this type we like to excise ulcer longitudinally and sew transversely. This can usually be done as the peri-duodenitis is not apt to be great.

The obstructive lesions are usually more satisfactorily treated by posterior gastro-enterostomy, but some form of pyloroplasty is as successful in many cases. In the majority, Finney's method would be indicated. It is surprising, however, how many of these ulcers may be excised longitudinally, with an incision up through the pyloric ring, well up on the wall of the pylorus, and down on the duodenum. The margins of the incision may be brought together by transverse suturing. Gastro-enterostomy is more frequently done, but when one considers the number of gastro-jejunal ulcers that develop, in a few or many years after, the serious complications and many deaths following secondary operations, he realizes the necessity of some form of duodenal repair.

The same treatment applies to the duodenitis. Large resection of the pyloric end of the stomach by German surgeons was occasioned by the common occurrence in Central Europe of multiple ulcers both in duodenum and in stomach. That condition is very rare in this country, so treatment should not be used except in the occasional similar case.

A new method of more limited exclusion for treatment of obstructive lesions has been satisfactorily used. The anterior wall of the stomach is sutured to the second portion of the duodenum.

I believe that an early operation should be done upon persons whose economic condition prevents the proper observance of the medical regime at home. If they are unable to carry out this treatment they run a great risk of developing one of the complications, in addition to pain, discomfort and disability.

DISCUSSION

Chairman Brenizer: You have heard Dr. Willis's paper. It is to be discussed by Dr. Bob Crawford from Rutherfordton.

Dr. Crawford: Mr. Chairman and Gentlemen: I want to emphasize one point—in the past fifteen years the pendulum seems to have swung back. I remember at that time nearly all general surgeous would advise operation for duodenal ulcer when a definite diagnosis had been made. Medical men and surgeons had many arguments about the treatment but it seems to me that the pendulum is swinging back because many of these cases are now successfully treated by dietary measures and medication.

Dr. Willis brought out another important point when he spoke of the economical side of many of these cases and the various types of patients we see with duodenal ulcer. A number of our cases are railroad workers and persons without financial means who cannot carry out a strict diet and often they turn up somewhere with a perforated ulcer if not operated previously.

Each year we see a half dozen or more with perforated ulcer. At first we did a simple closure of the perforated ulcer—drainage—and at the same time removed the appendix. Now we usually cauterize the perforated ulcer—do a simple closure and drainage—and if the patient gets along well, excision of the ulcer can be done at a second operation when necessary.

So many cases appear with perforated ulcer and I think Dr. Willis is quite right in saying that whenever possible the ulcer should be completely excised.

Chairman Brenizer: The next gentleman to discuss this paper is Dr. Sweaney, from Durham. Dr. Sweaney!

Dr. Hunter McG. Sweaney (Durham): I shall confine my discussion to a few remarks on the treatment side of this paper.

The patients who have perforated ulcers are in a desperate state. The ideal procedure is to do as little as possible to accomplish closure. Simple closure with drainage gives the best immediate results and can be done for the vast majority of the cases. The occasional case will require further surgery such as pyloroplasty or gastro-enterostomy. To my mind it is better to have the patient survive a simple reinforced closure with a later well planned secondary operation of low mortality than to impose a time consuming operation with the further additional hazard of shock and infection.

As to acute hemorrhage, the best results are to be had by medical treatment though the occasional case may not respond and demand direct attack on the bleeding point. The treatment as usually given of complete rest, ice caps to the epigastrium, morphine, absolute restriction of anything by mouth, and fluids subcutaneously and intravenously has been improved upon by the use of the constant Jutte tube drainage of the stomach contents as described by Eliason and Ebeling. With the usual fall in blood pressure and collapse of the stomach by the above method, hemorrhage is likely to cease by vessel collapse and blood clotting. Certainly, the above treatment should be given first and if not effectual, even with the administration of coagulants and blood transfusions, the ulcer should be excised.

I agree with Dr. Willis that gastro-enterostomy alone is unsatisfactory for bleeding ulcers. The untoward results of this operation are that hemorrhage may continue and jejunal ulcer may appear later. Excision of the ulcer and posterior gastro-enterostomy is, however, satisfactory if done properly.

Obstructive duodenal lesions are more encouraging to treat than either perforations or hemorrhage. It is here that the comparatively easy operation of gastro-enterostomy may be done with assurance that it will work almost perfectly. The new operation of anastomosis of the stomach to the duodenum anterior to the pyloric valve of Reid has much promise. Pyloroplasty has its field and may be done, if its indications are met, with good results.

The results obtained by Dr. Willis in the treatment of 38 cases of duodenal ulcer compare favorably with those elsewhere. I congratulate you.

CHAIRMAN BRENIZER: Is there any further discussion? If not, may I ask Dr. B. C. Willis, of Rocky Mount, N. C., to close?

DR. WILLIS: Mr. Chairman, the only thing I can add is that of those gastro-enterostomy cases, we had two who had been pestering us with recurrent hemorrhages. We hate to see them come in. We have tried to get them through without further operation. Then it is a question of a year, or two, or months, and in they come again.

Well, they don't want to go through another operation. "If you can possibly get me by," they say, "please try to get me by." They bleed white, and for that reason I am an advocate of the excision of the ulcer.

It can be done; and the transverse suture will give them a wide pyloric opening, and free flow. I must say, of those cases that we have done, not a single one has come back with recurrent hemorrhage.

We had one of these patients, a man in his late forties, who went into another hospital. The surgeon telephoned us to know what had been done to this man; the surgeon thought he had an obstruction. The patient said he had some kind of an operation on the outlet of his stomach.

I told the surgeon what had been done. He then made an X-ray study of the stomach and found a very wide open pylorus. The vomiting was found to be caused by a kidney deficiency.

Thank you. (Applause)

CHAIRMAN BRENIZER: We are about to hear the last paper on the program, which is an excellent paper.

I would like to say that the position on the program was taken merely in chronological order, as the papers were received by the Chairman. This is an excellent paper by Dr. Randolph Jones, Jr., and Dr. Deryl Hart, of Durham.

Dr. Jones!

SELF-INFLICTED INJURIES

By RANDOLPH JONES, M.D., and DERYL HART, M.D., Durham

Patients with self-inflicted injuries are seen by practitioner and specialist alike, and their occurrence in civil practice is not rare. These cases, moreover, present problems in diagnosis and in treatment which tax the ingenuity and experience of the most adept. As a class they are seldom considered in text books, except those on skin diseases, yet they have received attention in the literature from men in all branches of medicine. We wish to present a series of 12 cases which have been seen in the past 6 years.

Case 1: A white girl, 14 years of age, entered the hospital complaining of "sores on the head, legs, and arms" of 2 months' duration. The family and past histories were essentially negative. The present illness began 2

Fig. 1. (Case I)—Well defined circular areas of skin necrosis. These factitial lesions were found on the arms of an adolescent girl of 14, and were probably produced by the application of lye.

months before admission with the appearance of a painless purple spot over the left shin. The area gradually became black and, with sloughing of the necrotic skin, an ulcer formed. Within a few days 2 similar areas appeared on the dorsum of the left foot. All were quite painful and she was unable to walk. At intervals of several weeks other black necrotic spots developed on the scalp, and both wrists. The last on the right wrist appeared a week before entry and had been excised by her local physician 5 days before admission. She was brought to the hospital because of the progressive appearance of the lesions, the delay in healing and the inability of the local physician to determine their cause. He had not suspected that they might be self-induced.

The physical examination was essentially negative except for the patient's general appearance and reaction, and the presence of the skin lesions (Fig. I-II). She was shy, and uncommunicative except for the fact that she took great pleasure in exhibiting the skin lesions and in telling how she knew before hand when and where each was going to appear.

Over the vertex of the scalp was a shaved area in the center of which was a shallow ulcer 2 centimeters in diameter with a clean granulating base and well defined edges. On the lateral border of the left wrist above the radial styloid was a circumscribed black, leathery area of skin gangrene 2 centimeters in diameter. The edges were sharp and its outline a perfect circle. About the margin was a small zone of hyperemia and there was slight tenderness on pressure. On the right wrist was a lesion similar in appearance and location while over the wrist joint was a large deep ulcer (Fig. I) left by the excision of a gangrenous patch. On the dorsum of the left foot was an area of skin gangrene similar to those on the wrists. There was a healing ulcer some 2 centimeters in diameter over the lower third of the left tibia (Fig. II) where the first black spot appeared. All the lesions were sharply defined, about the same depth, and each was circular.

Laboratory examinations were entirely negative. Biopsy of the ulcers showed non-specific acute inflammatory tissue.

Further questioning elicited the fact that the first area of skin gangrene appeared the day before the beginning of the school term. The patient's home was one-hundred yards within the zone in which the children were required to walk to school. Prior to the year of entry she had been in the habit of walking the mile and a half to school, but with the appearance of the lesions on the foot she was allowed to ride the bus. When the lesions on the wrist developed she was excused from writing. With the development of each subsequent patch she was more and more released from duties about the house and farm. On close questioning about the origin of the lesions she withdrew more and more into her shell and strongly denied inflicting them herself. With repeated questioning she became frightened and tearful. Although she persistently denied the application of caustics of any kind, it was later learned from her family.

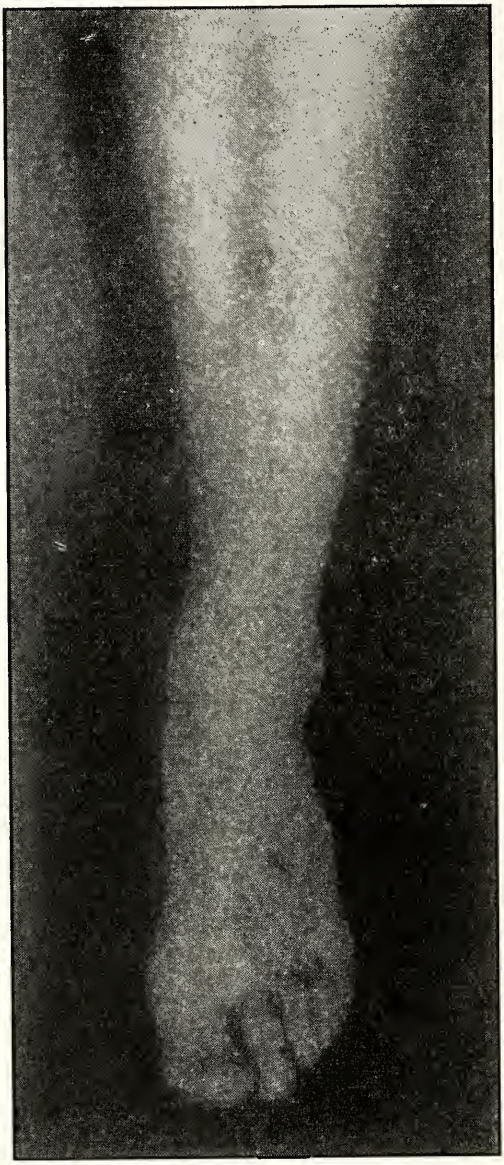

Fig. 2. (Case I)—Similar lesions on the upper extremities of patient shown in Fig. 1. The large ulcer on the right wrist followed excision of a perfectly circular lesion elsewhere.

She had easy access to lye which was used to make the household soap. No new gangrenous patches appeared while she was in the hospital. The lesions were treated with wet dressings. The necrotic tissue gradually separated and the wounds healed by second intention and no new lesions have appeared during the three years since her discharge from the hospital.

Self-inflicted injuries in patients at the age of puberty have long been recognized to be of frequent occurrence. The stress and strain of the period bring out weaknesses which might otherwise remain unrecognized. Generally the psychological motive has been considered as an attempt to elicit sympathy or attention and this may have been the case here. More probably she produced the successively appearing lesions as a means of obtaining relief from disagreeable duties at school and on the farm. As the patient was of average intelligence and had no stigmata of hysteria, it is hard to assume that she was not actually aware of the purpose behind her actions.

A very similar case in a less intelligent individual was seen in Case 2.

Case 2: L. M., an unintelligent female, mill worker, 20 years of age, was admitted to the hospital complaining of a skin eruption of ten years' duration. Her family history and past history were non-contributory. The present illness began with the appearance of a gradually enlarging area of skin necrosis over the right tibit. The slough gradually separated and the resultant ulcer required four to five months for healing. Similar areas have appeared intermittently on the arms, face, and neck. So that she has been free of these lesions for only two out of the ten years since onset. She failed repeatedly in school, reaching only the fourth grade during the seven years of her school attendance.

During the examination she feigned unconsciousness, performed athetoid movements, and was apparently insensible to stimuli. When she felt that she was no longer being observed she again returned to "normal." There were large raised, red, dense scars on the face (Fig. III), the back of the neck, and the right shin; and smaller scars on the backs of the hands, the forearms, and the fingers. On the dorsum of the wrist, the forearm, and upper arm on the right were irregular areas of black dry gangrenous skin about which there was very little reaction. (Fig. IV). On the left forearm was a similar large lesion with several smaller punctuate areas of necrosis about its periphery (Fig. V). The remainder of the examination and the laboratory studies were negative.

The lesions were dressed and slowly but steadily healed. While under observation she continued to have frequent attacks of athetoid movements which were easily interrupted by refusing to pay her any attention. After 7 weeks in the hospital the lesions had healed and she was discharged. Her family physician reported that she remained well for two months, after which time the ulcers began to reappear.

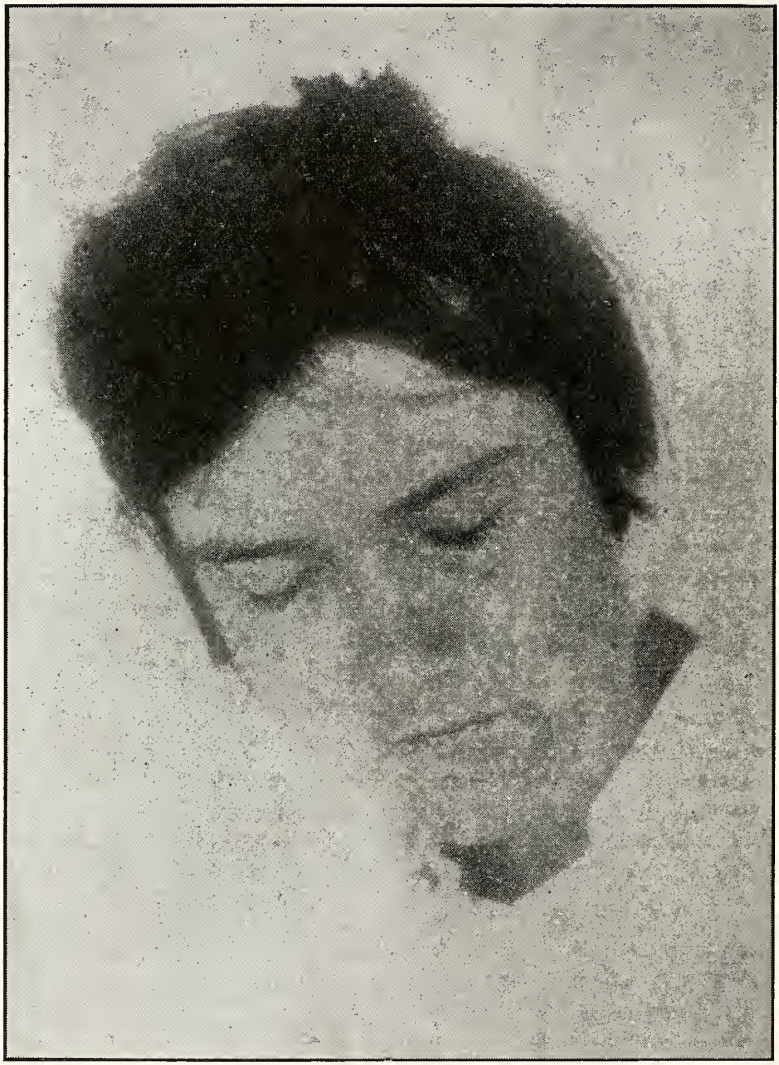

Fig. 3. (Case II)—Scars on the face following self inflicted eschars. The patient was a hysterical unintelligent mill worker, 21 years of age.

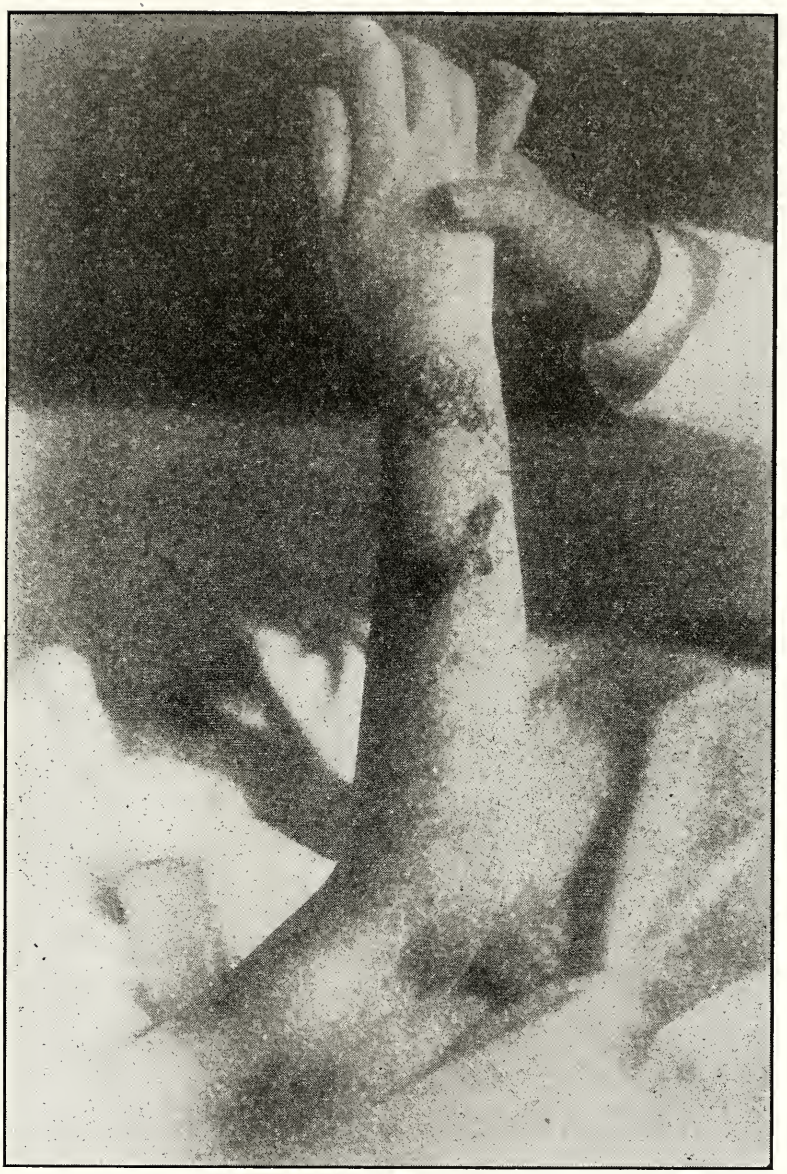

Fig. 4. (Case II)—Areas of gangrenous skin on the right arm of a hysterical patient. See Fig. 3.

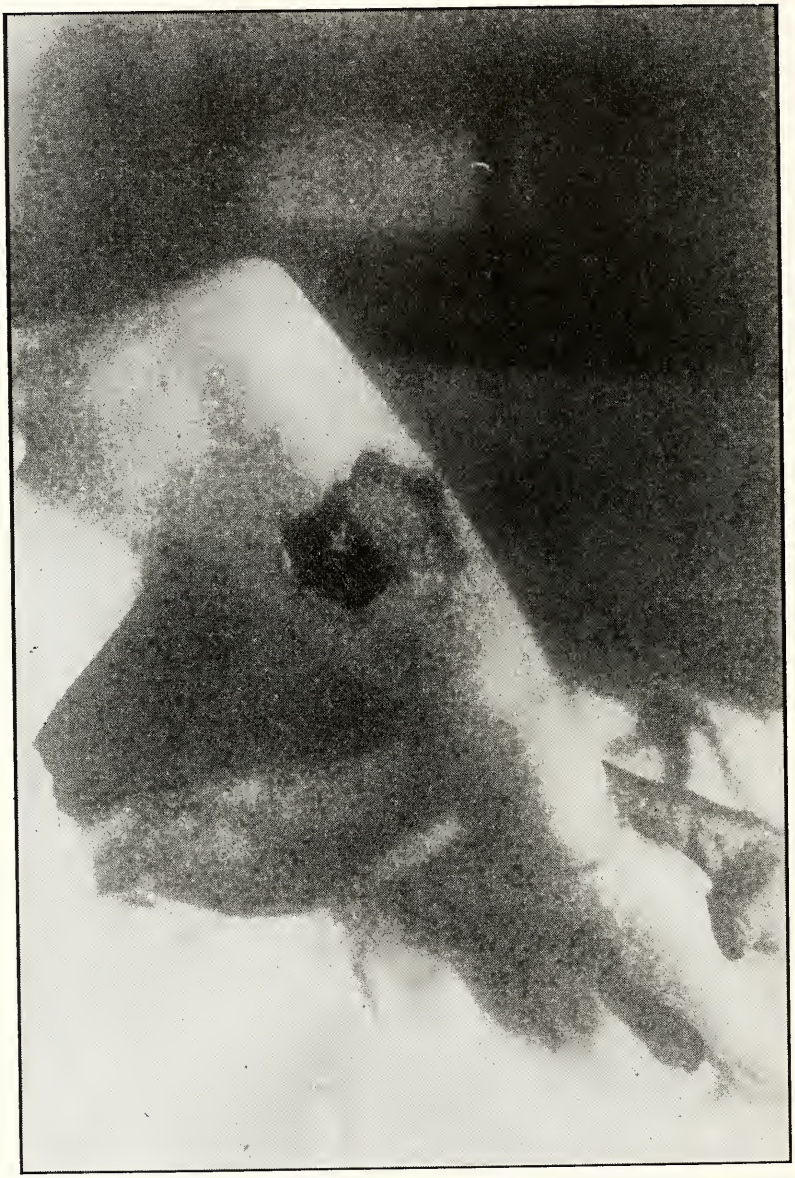

Fig. 5. (Case 2)—A large self inflicted eschar. This patient was discharged from the hospital with the lesions healed seven weeks after admission. Two months after her return home the lesions began to recur.

This case and the one which follows fall more definitely into that group of self-inflicted lesions found in the hysterical and the mentally deficient.

Case 3: M.R., a white woman, 30 years of age, an inmate of a county home, was admitted to the out-patient clinic complaining of a "sore" on the left foot of three weeks' duration. Her local physician stated that two years previously she had feigned a bloody discharge from her ear. At this time she would take blood obtained by sucking her gums, place it in the external auditory canal, and would complain of symptoms suggesting those of mastoiditis. She also gave a history that 11 years before entry she had vomited blood said to have come from a gastric ulcer.

The condition for which she was brought to the out-patient clinic began three weeks before entry as a black area on the dorsum of the left foot. In the intervening time several similar areas made their appearance about the original lesion over a period of three weeks. She was brought in by the physician for the county home who suspected her of malingering.

Examination showed a poorly developed, mentally deficient white woman of 30 with a strabismus, a perforated nasal septum and dental caries. On the dorsum of the left foot were 5 round areas of skin necrosis with little vascular reaction about the periphery. (Figs. VI and VII). The remainder of the examination and the laboratory tests were negative. It was felt that the skin lesions were factitial in origin.

She was next seen three months later. The original lesions were partly healed but there was a new crop (Fig. 6) in various stages of development over the lower leg. Several areas of necrosis were also present on the face (Fig. 7). The only treatment was the application of a plaster cast to make the leg inaccessible. Six weeks later all areas had healed.

Case 4: V.B. The patient, a white girl, 19 years of age, was sent to the hospital by her surgeon because of an unhealed appendectomy wound of four years' duration. The family and past histories were negative.

The present illness began with an operation for acute appendicitis. The abdominal wound had been closed in layers with catgut and the skin with dermal sutures. Except for a small sinus at the upper end of the incision healing was by first intention. This sinus, however, continued to discharge seropurulent material. A large scar formed which was treated with a small dose of radium four months after operation. The scar then gradually began to break down and a superficial ulcer formed which was treated with Alpine lamp and diathermy. The wound gradually filled in, but would not completely heal. Sixteen months after the original operation the scar tissue was excised and the wound closed but it would not heal. Five months later which was a year and a half after the original operation the scar tissue in the base of the wound was again excised but did not result in healing. During the next two and a half years 6 other attempts were made to obtain healing by excision of the scar and closure but without success. The wound would fill in cleanly but epithelization

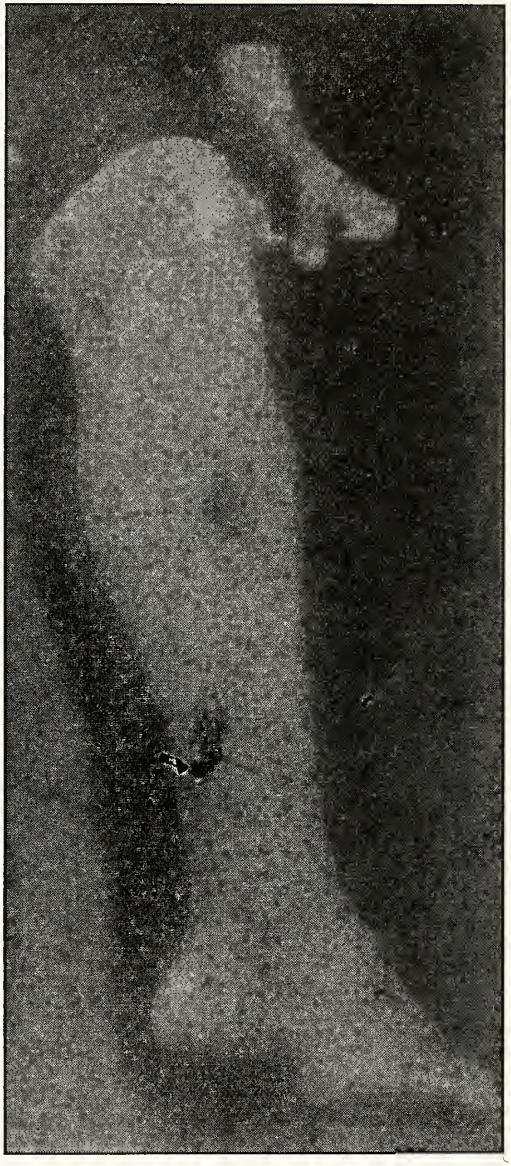

Fig. 6. (Case III)—Areas of skin gangrene on the leg of a patient of extremely low intelligence.

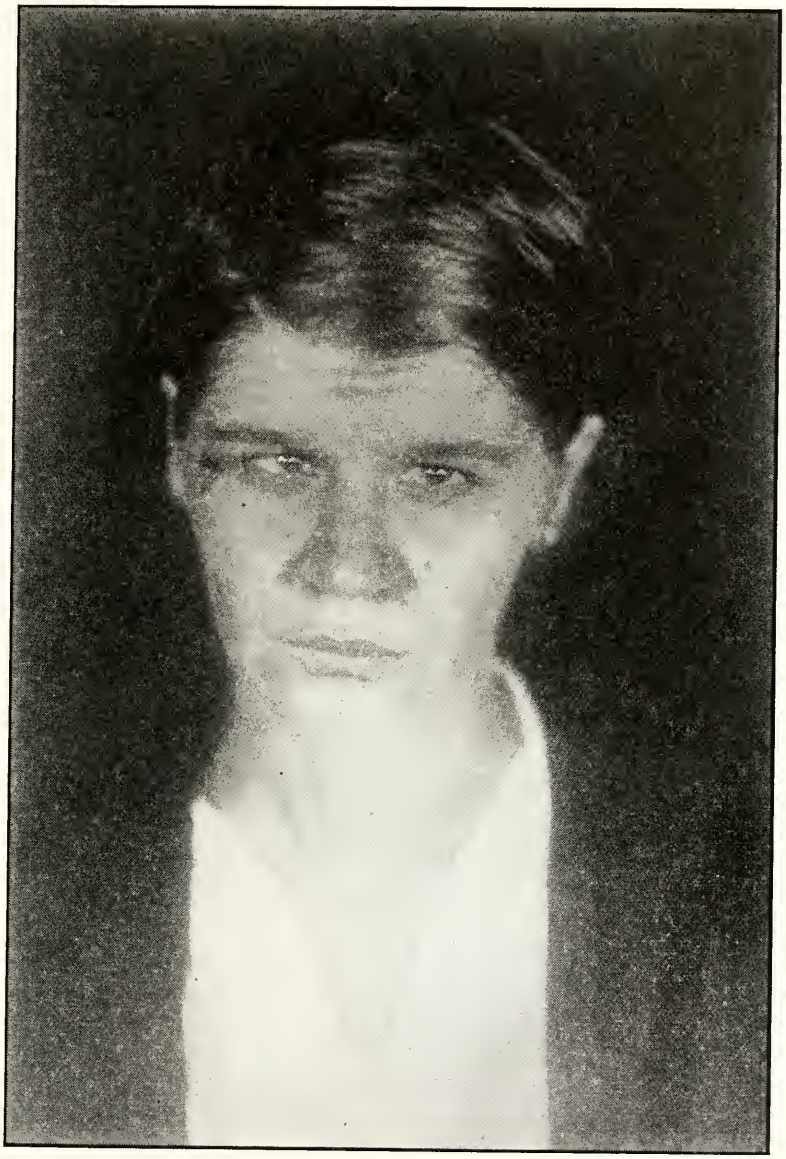

Fig. 7. (Case III)—Self inflicted areas of skin necrosis on the face of an inmate of a county home. This patient had a history of malingering two years before the lesion developed.

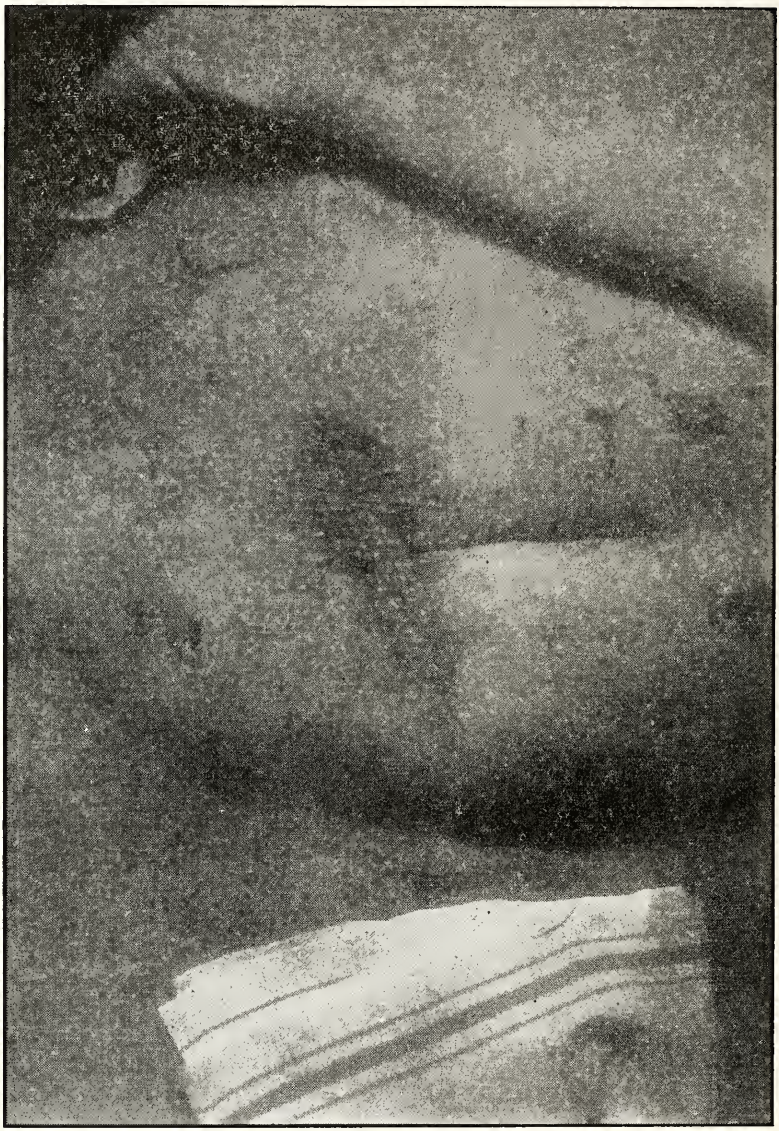

Fig. 8. (Case 4)—The end result after pinch grafting an appendectomy wound which had been kept from healing by the patient over a period of four years. This patient used every artifice at her command to get her family to remove her from the hospital, and cried bitterly for 48 hours when she was unsuccessful.

would not occur. There was a variable amount of bleeding from the wound which was treated by cauterization, electrocoagulation, hemostatic serum, and adrenalin but without effect.

Examination showed obese, white girl of 19 who was alert, but somewhat over-coöperative. Her reactions were decidedly childish, and she was very cheerful in spite of her infirmity which had kept her a virtual invalid for four years. On the right lower abdomen was an ulcer 10 centimeters long and 2.5 centimeters broad, which occupied the region of a low right para-rectus incision. (Fig. 8). The general contour was a long oval with smooth, elevated, well defined edges. The ulcerated area had a dirty, granulating base somewhat papillomatous in character, so that blastomycosis had been suspected. No sinus tracts were visible but there was a thin, seropurulent secretion. There was little tenderness in the region when the patient's attention was diverted, and the abdominal wall did not seem to be deeply involved.

Laboratory examinations were negative. Cultures of the wound showed the presence of staphylococcus albus.

For three days the wound was treated with hot saline compresses, and though there was slight oozing of blood on an occasional dressing, little else was noted. By the third day the granulations were much cleaner, and under gas and oxygen anesthesia the ulcer was thoroughly curetted and the patient placed in a body cast. Pathlogical examination of the curetted tissue showed only non-specific chronic inflammation.

At the time of the operation a vaseline gauze dressing had been applied to the wound, and the cast was carried down over the iliac crests. Gentian violet was painted on the skin in the region of the wound, and when three days later the patient's fingers were slightly stained with the dye, the body cast was removed and a second cast applied extending from the chest over iliac crests and including the right thigh. At this time the wound was dressed and found to be healing nicely. Two days later a window was cut over the wound and saline compresses were again started. With a clean growth of granulation tissue pinch grafts were transplanted to cover the area and 10 days after the curettage the wound had completely healed. (Fig. 8).

Here too, the patient could tell beforehand when the wound was going to bleed. After having been put in a body cast and after having cried for forty-eight hours almost continuously and having sent wires to her family to come after her (the family came but refused to take her home) she suddenly appeared brighter and said, "I have a feeling I am going to get well," which she promptly did. Though no admission of self-inflicted irritation of the wound could be obtained the story speaks for itself.

Case 5: W. M. The patient, a white man 21 years of age, was operated on 7 years before for appendicitis. Following the operation the wound would not heal. During this time the wound had been dressed from once a day to twice a week, and 5 or 6 operations had been performed in attempting to obtain a closure and healing. His surgeon stated that there were never

any deep lying sinus tracts, the edges were never undermined, and the granulations were always healthy. Healing at times would progress favorably and at other times the ulcer would spread.

When the patient was first seen by us he had the appearance of a perfectly well 21-year-old boy. The only abnormal finding was on the right lower abdomen where there was a large scar, the result of repeated operations, and in the lower part of this was an ulcerated area measuring about two and a half centimeters in diameter. The edges were not undermined, but on the contrary there was some new growth of epithelium and evidence of healing. The base of the ulcerated area was covered with healthy granulation tissue, and there was no evidence of a deep lying sinus tract. The granulations were a little below the level of the surrounding skin, and there was nothing in the appearance of the wound to explain the failure to heal. In fact the appearance of the wound and the conditions for healing were so ideal that we were forced to the conclusion that the patient was keeping it open.

We made a mistake by not hospitalizing this patient and applying a cast. The entire right lower quadrant of the abdomen was painted with gentian violet so that it was difficult to differentiate the ulcerated area from the surrounding skin. A large dressing was then applied, and over this was placed a single layer of gauze which was sealed tightly to the abdominal wall with collodion. Our attention was centered on either healing the wound or fixing the blame for non-healing on the patient. Dressings were changed every two days.

Within 10 days the wound was at least two-thirds epithelized. It became progressively more difficult to keep on the collodion dressing, the patient stating that they worked loose around the edges. He was told to come to the hospital day or night if they began working loose. He finally came in with the dressing detached along the lower border, and with a report that the discharge had been much worse. Before removing the dressings it was called to his attention that the discharge was dried blood, and as soon as the dressing was removed his attention was likewise called to about a half dozen tangential cuts in the skin, each measuring about 2 centimeters in length and lying just below and to the side of the old ulcer which still showed progressive healing. Since that time the patient has not been seen by either his surgeon or by us.

Case 6: Another patient who was not under our direct care but who was seen by one of us had an appendix wound which would not heal until she was placed in a plaster cast and the area skin grafted. Healing was rapid, but she was seen several years later, having made the rounds of the country and still had an open wound in the appendix scar.

Extreme examples of this type of case have been known to keep wounds open for several years by irritation or insertion of foreign bodies. One patient had been reported who pushed a knitting needle from an appendiceal wound into the bladder. We know of another patient who had multiple subcutaneous sinuses which ran up and down the thighs and

across the abdomen. It was finally learned that she produced these lesions forcing a crochet needle beneath the skin, pushing the point out, and pulling it through. While the cases here reported could not be proven definitely to have masochistic tendencies, instances of patients who indulge in repeated and persistent self-mutilation or irritation of the skin to gratify sexual desire are well known. Perversions of this type may range from mild degree of masochism as illustrated by the patient reported by Stokes who obtained sexual gratification merely from irritation of the skin, to the severe types of where the patient can obtain sexual satisfaction only from severe flogging or injury.

*Case 7:**. A. The patient, a 35-year-old white woman, came into the hospital with a complaint of "Raynaud's Disease." She had had numerous operations with partial amputations of most of her fingers. The little finger on the right hand had been amputated at the metacarpophalangeal joint. Over the end of the fifth metacarpal bone was an area of gangrene, (Fig. 9) which extended about one-half way down to the first interphalangeal joint, and with a sharp line of demarcation. The patient complained of severe pain in the hands but did not seem to be suffering when she was "off guard." There was a good pulse at the wrist on both sides and the hands had an entirely normal appearance except for the evident mutilation from previous operations and the small area of gangrene.

The patient was unusually loud in her lamentations, talked continuously of her unfortunate condition, and begged us to do something so that she could get well and care for her children and family. She insisted that we amputate through the middle of the fifth metacarpal bone, for she was certain that otherwise it would not heal.

She was given gas anesthesia and the ulcer excised. Bleeding was profuse. The skin was closed and the entire lower arm and hand placed in a plaster cast. The patient was insistent on knowing what had been done. After twelve days the cast was removed; primary healing was complete; the sutures were removed and a new cast applied. The patient cried almost continuously for over twenty-four hours, giving no explanation except that we had fooled her. It has been impossible to trace her since she left the hospital.

Case 8: W. F. A pupil nurse, 23 years of age, came into the hospital with a history of having burned her hand with carbolic acid. Alcohol was immediately applied. She had a moderately severe second degree burn and she was admitted to the infirmary. The burn healed rapidly, but it was discovered that she ran a temperature between 101 F. and 104 F. She was kept under observation for six months and had every conceivable examination for infection. Nothing could be found so she was discharged with a diagnosis of "hyperpyrexia unexplained."

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* This case was used by permission of Dr. Dean Lewis.

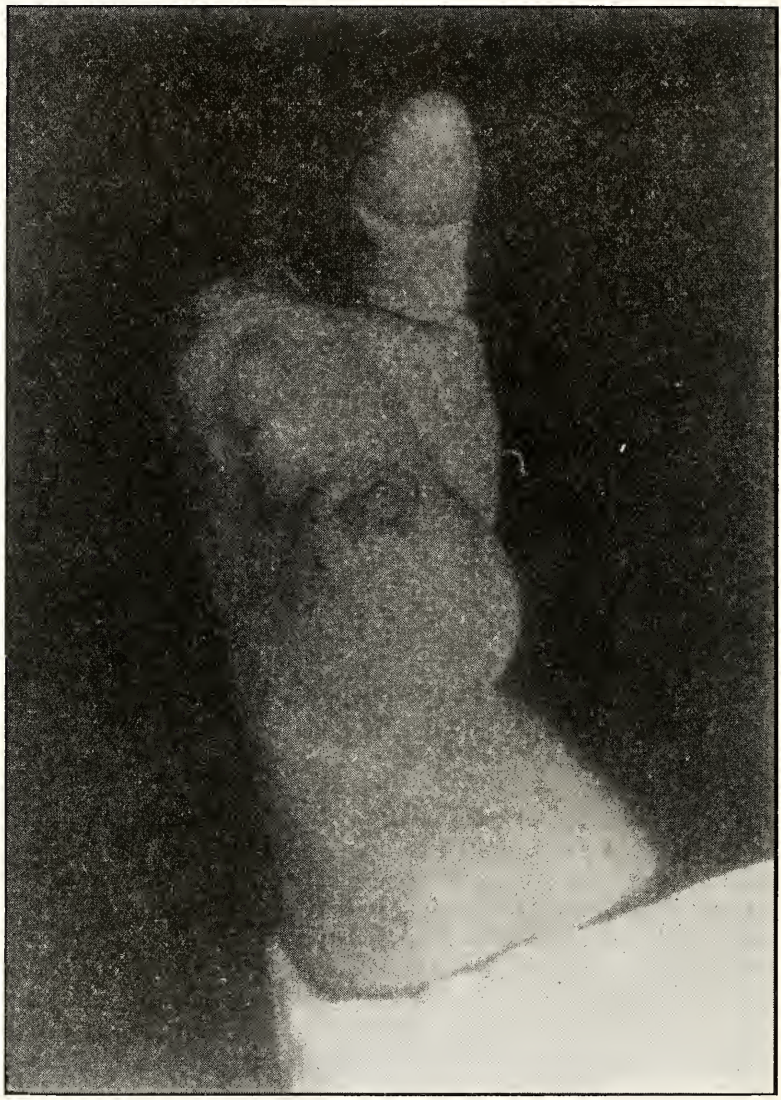

Fig. 9. (Case 7)—A factitial ulcer on the stump of the little finger. This patient had had partial amputation of all her fingers for "Raynaud's disease." She had no evidence of this condition, and cried bitterly when she found that no further amputation had been done when the cast was removed from the hand after the ulcer had healed, following simple excision.

Fig. 10. (Case 9)—This ulcer, occupying the nail bed of the great toe, had been kept from healing by the patient for one year. It healed promptly after the base had been curetted and the foot placed in a cast.

She first came under our observation about a year and a half later with a peculiar "infection" about the nail of the middle finger of the left hand. This had the appearance of a paronychia which would advance to the distal interphalangeal joint and then recede, but without definite evidence of pus formation. Finally an incision was made to the side of the nail but only blood was obtained. There was temporary improvement and then the condition became much more advanced, but still there was no evidence of pus. The nail was removed with temporary improvement. A week later when the patient returned for her daily dressing, there was a fiery red discoloration of the dorsum of the middle and ring finger and hand up to the wrist, having somewhat the appearance of erysipelas.

The patient was then admitted to the hospital, and we were told of her previous history of hospitalization and of her peculiar temperature reaction. The temperature course was the same as on the former admission; the hand rapidly improved. A few days later her face was particularly cool when her temperature had been recorded a few minutes before as 103 F. with a pulse of normal rate. An enterprising and suspicious member of the house staff repeated the temperature immediately by mouth, axilla and rectum simultaneously with the patient under close observation. All thermometers registered below 98 F. When temperatures were taken thereafter the patient was closely watched and the only subsquent rise was when she asked the nurse to place a coat in a closet and close a window. The thermometer on this occasion registered 103.5 F.; her temperature was normal when taken immediately thereafter. The patient was dismissed from the training school as mentally unsuited for nursing and a few weeks later she wrote that the hand which had healed was again giving trouble. She has not been heard from since.

Case 9: C. L. J. A white woman, 29 years of age, entered the hospital complaining of a chronic infection about the nail of the right great toe. For 6 years prior to admission she had had minor operations for an ingrowing nail on the medial side of this toe. One year before entry the entire nail had been removed 10 days after the onset of an acute infection. During the year before admission the nail bed was curetted twice but the wound would not heal.

Aside from the lesion of the great toe on the right foot the physical examination was negative. The position from which the nail had been removed was occupied by a clean granulating ulcer some 1.5 centimeters in diameter (Fig. 10). The toe was otherwise normal and there was no evidence of extensive infection.

During the patient's stay in the hospital the ulcer was first compressed, then curetted, and the matrix of the nail excised under local anesthesia. Compresses followed by vaseline gauze dressings and the application of a plaster cast to the foot and lower leg resulted in prompt healing.

Case 10: J. W. P. This patient, a 31-year-old white man, was seen in the out-patient clinic complaining of a sore hand of 18 months' duration.

Fig. 11. (Case 10)—Scars of factitial lesions covering the entire arm of a 31 year old white man. These were probably caused by self inflicted cigarette burns.

Two years before his first visit he had burned the volar aspect of the wrist with a cigarette. An infected pustule followed which healed leaving a round scar. During the next 4 to 6 months he progressively developed over the forearm and upper arm multiple small blisters which became infected. These gradually healed leaving round scars. Eighteen months before entry he developed a "boil," on the dorsum of the hand. After this had remained virtually unchanged for 4 months it was incised following which it drained a small amount of serosanguinous fluid. Since that time, 14 months before admission, it has never healed. There has been intermittent blood drainage; pain in the hand, has been worse at night and he has thought that the arm was becoming weaker.

Examination showed the left arm partially covered from wrist to shoulder by numerous round, regular, well-healed scars (Fig. 11). These extended up to and stopped sharply at the shoulder. On the dorsum of the hand at the base of the second metacarpal bone was an area of heaped-up scar tissue in the center of which was a small sinus exuding old blood. There was no reaction about this and no impairment of function in the hand.

The laboratory examinations and the remainder of the general physical examination were negative. A "jelly" bandage was applied to the hand and forearm. One month later when this was removed the "boil" was completely healed.

The two cases which follow belong definitely to the group of purposeful malingerers. Both patients were receiving compensation for disability due to their skin lesions.

Case 11: C. R. The patient, a white woman, 29 years of age, a mill worker, was admitted to the hospital complaining of "sores" over the left knee and stiffness of the knee joint. The family and past histories were non-contributory. The illness for which she came to the hospital developed 10 months before entry when while working in a cotton mill she was bitten on the left knee by a "scorpion" which she describes as being a small lizard. Within 2 weeks black areas which subsequently became infected appeared about the knee, and the knee became stiff. One group of lesions was treated with wet compresses and a later crop was excised. Healing was slow and new lesions appeared in the vicinity of the old. She was hospitalized elsewhere twice without permanent cure. The industrial commission sent her to the hospital, suspecting that she was malingering.

Examination showed a well developed white woman who in one breath yearned to be well and in the next was very evasive as to the manner in which the skin lesions developed. Over the left knee and lower thigh were several circular and dumbell-shaped areas of skin necrosis (Fig. 12). There was very little reactions about their periphery. Scars of numerous previous lesions were present. The margins of the more recent lesions were very regular and at several points were small comma-like areas of skin irritation at the edges, as though some of the liquid caustic had

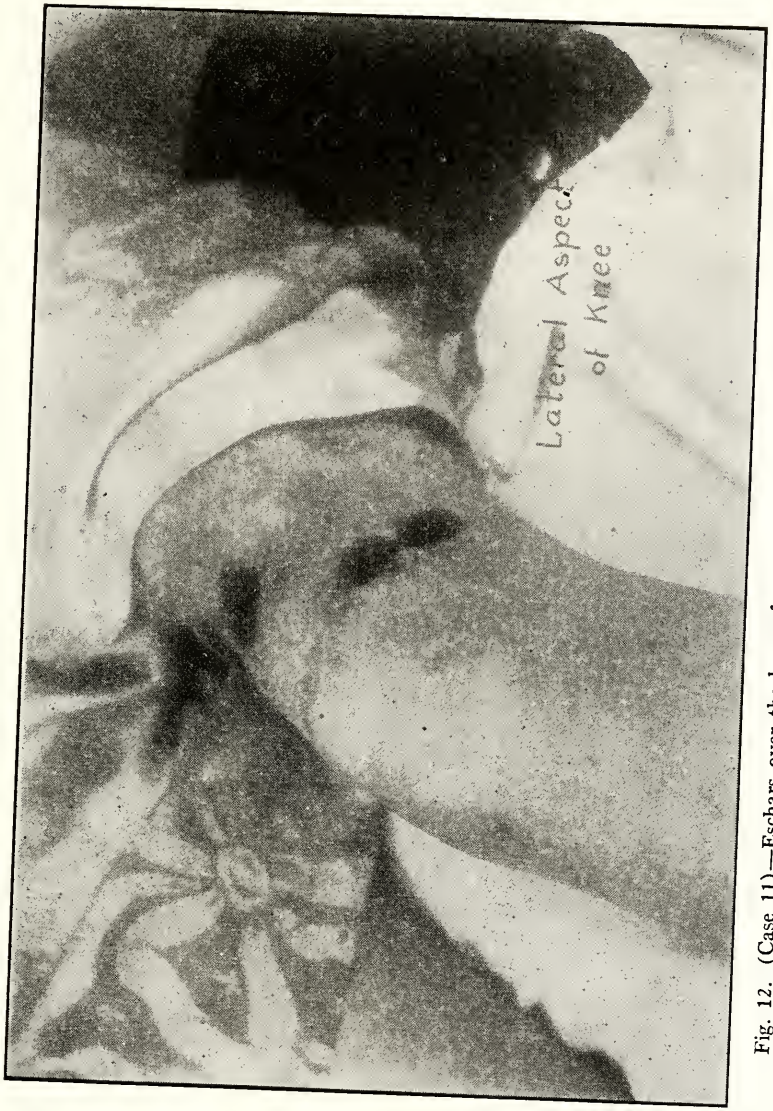

Fig. 12. (Case 11)—Eschars over the knee of a 29 year old mill worker. This patient had been drawing compensation for 10 months before she entered the hospital.

spilled over on the skin and then been quickly wiped off. The knee was held perfectly rigid until her attention was diverted when it relaxed and could be moved 10 to 15 degrees before she noticed the motion and again held it rigid.

After she had been placed in a ward surrounded by patients and without access to any chemical she said she felt she was going to get well.

The remainder of the physical examination and the laboratory findings were negative. Under a general anesthesia the eschars were excised and the defects grafted. With the induction of the anesthesia she moved the "stiff" knee through its normal range of motion. Following grafting healing was rapid.

Case 12: J. M. This patient, a 23-year-old white man, stuck a nail in his foot 2.5 years before entry. He was treated at that time and his wound healed without pus formation. Following the injury, however, his foot continued to swell. Because of this swelling the plantar surface of the foot in the region of the puncture wound was incised; no pus was obtained, and healing was rapid. He then developed an eruption on the dorsum of the foot which has recurred periodically since that time. Whenever the patient has been under treatment his foot has improved, but shortly after discharge it invariably became worse again.

The patient was first seen by us 2.5 years after the injury, at which time he showed a pustular eruption with pustules of different ages over the dorsum of the foot. Some were old and were covered only with a dried crust. Others were fresh and were filled with yellow pus. Some of these were opened and a small piece of material which resembled a splinter was found. We strongly suspected that the patient had been doing something to his foot to cause the pustules to develop. One of the small spicules was examined under the microscope and had the appearance of a splinter. The foot was thoroughly washed with alcohol and a plaster cast applied extending up above the calf and completely covering the toes.

Two weeks later when the patient returned and the cast was removed all of the pustules had healed. There were crusts at the sites of the former pustules, and in the center of many of these crusts was a small black spot which looked like a foreign body. Many of these crusts were removed and a small bristle-like spicule was found projecting beneath the surface and into the skin. There was a small area of pigmentation at the site of each putule. The foot was again completely covered with a cast.

At the time of the final checkup 6 weeks later, the foot was entirely healed. The patient was told in the presence of an insurance representative that there was no relationship between the putules and the previous injury when he stuck the nail in his foot. He was also told he was not entitled to further compensation.

Purposeful self-inflicted injuries are more frequent in adults than in children. In civil practice the majority of the cases are found in women, while the frequency of self-inflicted lesions in military practice makes their appearance in men no rarity.

Three of the cases in this series are men. In the group of female patients the more common picture is some form of dermatitis artefacta, though subcutaneous insertion of foreign bodies such as needles is at times noted. In cases of male patients there are recorded instances of cellulitis artificially produced by the injection of liquid feces, saliva, crude oil, turpentine, or metallic mercury. Granulomas have been caused by the injection of paraffin or camphor; herniae by the forcible dilatation of the external ring, and rectal prolapse by tearing of the rectal sphincter. Abscesses have formed following the insertion of thread, horsehair, or splinters beneath the skin.

The diagnosis of conditions of this type depend primarily on ruling out organic disease. To one who has seen several cases the estimation of the personality of the patient may be of great assistance. There is usually an ill-definable quality about their general reaction which defies description. They may be over-coöperative, too insistent that their trouble is of no consequence, and that they can return to their daily routine. The general appearance of frankness may be overdone and yet while apparently willing to tell everything they may continually evade straightforward questions.

A careful history and thorough examination with laboratory procedures as indicated are always necessary.

The character of the skin lesions produced by escharotics has been so often described that it need not be repeated here. Biopsy, culture, or curettage of the local lesions may at times be necessary. When these patients cannot be kept under continuous observation, suggestions as to the appropriate location of new lesions may help clinch the diagnosis.

A word should be said about wounds which without obvious cause refuse to heal. These are often most puzzling and the possibility of interference on the part of the patient should always be kept in mind. The lesion should be carefully explored, under anesthesia if necessary, and a search made for sinus tracts, foreign bodies, etc. A dressing should be applied which will prevent the patient from reaching the area involved, and for this purpose a plaster cast is ideal. Often painting the skin in the region of the wound with one of the colored antiseptics such as gentian violet or mercurochrome will leave tell-tale marks on the fingers, should the patient attempt to reach the area. Windows can be cut in the plaster for dressings and restrapped in a definite pattern each time the wound is dressed. Or collodion may be used to seal the edges. Not infrequently the patients complain bitterly against the use of a cast and use every artifice to have it removed.

Daily inspection of the wounds will show a rapidity of healing that is surprising. Certain patients when they see the wound is going to heal are able to adapt themselves quickly to the normal routine. With others the aid of an experienced psychiatrist may be necessary to effect a complete cure.

One feels that any attempt to classify these patients into groups should take into consideration the motive behind the act and the extent of insight the patient has of his or her psychological processes. In the simplest form these injuries seem to result from (1) a desire to gain sympathy and attention or to evade some unpleasant duties. Such was true in the first case of our series, although it should be noted that some psychiatrists might class her as hysterical. (2) There is a very definite group of cases occurring in hysterical patients, usually in those with a subnormal intellect. (3) There are a very definite number of patients who obtain from their lesions a certain amount of sexual gratification which seems to be the dominant factor in keeping the lesion active. (4) There are also cases of self-mutilation found in the major psychoses. These patients apparently make no effort to evade the responsibility for the lesions being self-inflicted. (5) And finally there is a great group of adult purposeful malingerers who consciously mutilate themselves, having an underlying motive which they realize although they may not admit.

These 12 patients within the past six years attest the fact that such cases are not a rarity and should be kept in mind.

DISCUSSION

Chairman Brenizer: This paper was to have been freely discussed by men who have had a large experience in surgery. May I ask Dr. Boland if he would like to make a few remarks about these cases?

Dr. Frank K. Boland (Atlanta, Ga.): Mr. Chairman and Gentlemen: I have had considerable experience in surgery, including two years in military service, but I have never seen any cases as these, I will have to admit. I certainly am amazed by such cases. I long ago would have referred them to a dermatologist.

I think it certainly calls for the keenest kind of observation and study to recognize such cases, and I congratulate Dr. Jones upon his success.

I appreciate very much being asked to discuss this paper, but I am afraid I just can't add anything to it. As I say, I am amazed by such cases. If I have ever had any cases like this—very likely I did have, and did not recognize them, I don't know. I have had wounds which refused to heal, which I thought were due to some other cause, and very likely some of these were cases of this kind which I did not recognize.

Now, the report of these cases, especially the one where the girl developed such a high temperature, reminds me of a report I read some time ago of a malingerer in a large hospital, who came back repeatedly with a temperature ranging from one hundred and three to one hundred and four and one hundred and five, with no other symptoms to go with such a high temperature. He was examined and treated time and time again.

But one day his temperature went up too high, about one hundred and eight, and they found no other symptoms to coincide with such a high temperature. They then suspected him of malingering, and they found out that this man had developed some method of making friction with his

tongue on a thermometer, and he could raise the mercury in a thermometer right up to the top of it. (Laughter)

CHAIRMAN BRENIZER: May I ask Dr. Hart to close this paper?

DR. DERYL HART: I have nothing further to add to the paper, except the fact that these are very interesting cases, and sometimes they are very difficult to catch.

In the first case I had, the girl with a high temperature, we made two or three false incisions on her finger without any need for it, simply because of the hyperpyrexia. She had a very peculiar appearance.

However, the reaction of these patients is so definitely characteristic; they are over-coöperative, they are over-anxious to get well, and at the same time they give you the impression that they don't want to get well, and that is a great help in diagnosis.

I think the main thing in diagnosis is to suspect them all if there is anything abnormal going on. If the wound won't heal, don't trust any of them. And by that means I think we are able to pick up these peculiar cases as they come along.

CHAIRMAN BRENIZER: This brings the Surgical Section to a close, and may I thank the authors of the papers for giving them in such fine style, and such good papers?

I thought this was going to be a good program and as I have heard it I think it has been better even than I expected.

If there is no further discussion we will stand adjourned until next year.

. . . The meeting thereupon adjourned at five-thirty o'clock. . .

SECTION ON OPHTHALMOLOGY AND OTORHINOLARYNGOLOGY

TUESDAY AFTERNOON SESSION, MAY 1, 1934

DR. VANCE P. PEERY, *Chairman*

The Section on Ophthalmology and Otorhinolaryngology of the Medical Society of the State of North Carolina convened at two-twenty o'clock p. m., in the Men's Card Room, The Carolina Hotel, Pinehurst, Dr. Vance P. Peery, Kinston, Chairman of the Section, presiding.

CHAIRMAN PEERY: We are running a little bit late today and even though there aren't very many here, I think we had better get started on this program. So I will now call the Section on Ophthalmology and Otorhinolaryngology of the North Carolina Medical Society to order.

First, I want to again express my appreciation for the compliment you paid me last year when you elected me Chairman of this Section. I served two years as secretary, which called for a great deal more action on my part than I was required to exert as Chairman, as Dr. Fassett is an ideal secretary and he did all the work.

There is considerable work connected with getting up a program and Dr. Fassett has been very diligent and untiring in his efforts and any credit that should accrue as a result of this program this afternoon should go to him.

As is the custom every year we have to select a committee of three, the duty of which is to listen to all the papers presented before this Section and select the one that they consider the best, to be submitted for the award of the Moore County Medical Society Medal. On this committee I will appoint Dr. W. P. McCoy, Dr. H. C. Wolfe, and Dr. A. C. McCall.

We purposely put our main address this afternoon midway in the program, thinking that some of us would come in late and that would give them an opportunity to hear it, even though they come in late.

My own address as chairman I will not apologize for. Neither am I putting you on notice that you are to expect very much. But being convinced that endoscopy is a sadly neglected line of endeavor I have just written a few words on this subject, and I am going to show you just a few X-ray plates. Unfortunately, the very thing that I wanted to stress I find that my X-ray technician failed to put in. He neglected to put in about four plates showing advanced bronchiectasis by lipiodol injection and two of huge lung abscesses. I apologize for his mistake in that matter.

ENDOSCOPY FROM AN ECONOMIC STANDPOINT

By DR. VANCE P. PEERY, Kinston

(Chairman's Address)

Why that title? For the simple reason that we have passed through a period of depression during which some of us have not been as busy as

we might be, and the thought may have occurred to some of us that if someone else is getting our tonsil operations, if some general surgeons are doing mastoids, and so on, why shouldn't the otorhinolaryngologist go into some of the border fields of surgery? That is one answer to increasing the amount of work in otorhinolaryngology. For instance, I have held for the last ten years that it is rather far-fetched to say to the laryngologist, "You may make a T-shaped incision, take out the larynx on definite indications, handle the thyroid, its upper poles, you may go below the thyroid isthmus and do a low tracheotomy and handle the thyroid, but you must not take that thyroid out. You may handle it, do as you please with it in most operations, you can take a tube and look inside the windpipe and see what you never see as a general surgeon, but that is a touch-me-not." I don't subscribe to that view. I think there are certain times when the otorhinolaryngologist can go into the border line fields of surgery and do it as well as anyone.

I desire to call the attention of the members of this section to an opportunity for service—first, to the patient—second, to their colleagues and the hospitals with which they may be connected—and third, to the members themselves.

I believe a bronchoscopic service to be a prime necessity to every hospital, special or general, and that the man doing otolaryngology is the logical one to perform this service, trained as he is in monocular vision and depth of perception, much of his work being in cavities, employing delicate instruments, and dealing with sensitive and easily traumatized tissues. I am going to tell you briefly about some of the cases occurring on my service at Memorial General Hospital, Kinston, which I think offer some evidence of the opportunity in any hospital where there is not available a well organized bronchoscopic team, believing that our situation in Kinston is no different from the conditions under which you are all working.

Years ago Jackson in his clear and concise way stated, "The internist can look, listen, and tap on the outside, the roentgenologist can look through, but only the bronchoscopist can see inside the lung or the esophagus."

Viewed from an economic standpoint the bronchoscope and the esophagoscope should be considered as specula, just as the nasal, ear, vaginal, rectal, and bladder specula, or cystoscope, are all capable of certain economies, having their definite limitations, yet definite indications.

In the solution of the foreign body problem the bronchoscope has been so forcibly demonstrated that no other method is to be considered. And, too, so much literature on this subject has appeared in the past that interest has been focused upon the bronchoscope primarily in this connection, and many lose sight of the hundreds of cases where diagnostic and treatment difficulties have been surmounted with its aid, after other methods have failed to suffice. In any series of endoscopic procedures

those done for foreign bodies should be only a very small percentage of the total. I need only mention such cases as insufficient drainage of a bronchus due to blocking with mucous plugs, tumor, stricture, or granulations in the lung, and stricture, new growth, pouches, ulceration, congenital lesion, or preventriculosis of the esophagus. One of the most startling results is noted in early lung infections by repeated aspiration or the competent management of preventriculosis.

In the handling of chest conditions I am convinced that coöperation between the endoscopist, the internist, or pediatrician, the roentgenologist, and the chest surgeon is essential for patient protection, and in many cases the absence of this coöperation for any reason might well lead to charges of malpractice. This coöperation between these different services affords the benefit of their different viewpoints, and as only the endoscopist actually knows his way around inside, his views should be helpful. Chest surgery, which has developed rapidly in the last decade, is essential to a bronchoscopic service, and there is no good chest surgery department anywhere which is not capable of being better with the assistance of endoscopy.

It is true that we cannot see around every corner or into the smaller bronchi of the lung, yet there is evidence to be gained by seeing even in the neighborhood of a lesion. The otoscope does not permit a view of the mastoid antrum or the additus of middle ear if the drum is intact, nor the cystoscope a view of the ureteral lumen in its entirety, or the vaginal speculum the entire cervical canal or adnexa, but the gynecologist, for instance, gathers valuable information by viewing a limited field, making other examinations and findings to arrive at a diagnosis. One of the real tragedies in gynecology occurs when a doctor allows an early curable malignant lesion of the cervix to progress to an incurable condition, merely because he has not taken the pains to look and see and feel that organ.

Bronchiectasis, well-advanced, with its structural changes—large septic tanks, as Jackson terms these cavities—is a tragedy of the same proportion. Treatment then must be mutilating surgical procedures—but the prevention of bronchiectasis by a competent, positive-functioning endoscopic department is no idle dream. Lung abscesses, serious and disabling, and with a high mortality, is entitled to and demands bronchoscopic judgment and experience. Then if every chronic cough, a typical asthmatic wheezing, expectoration of blood or suppurative matter, be given the benefit of endoscopy, we can hope to give each patient his due—adequate study. Thanks to endoscopy, that field below the level of the cords and the crico pharyngeus is no longer a dark room.

As to the endoscopist's participation in the economics of a department, he has not only the consciousness of the assistance he renders to all concerned in diagnosis and treatment. It is true that foreign body cases are notoriously poor pay. Yet, as the foreign body service is a very minor consideration, financial returns may be expected from the larger field of

diagnosis and treatment of pathological conditions of the respiratory tract and esophagus enumerated above.

CHAIRMAN PEERY: Gentlemen, the second paper on the program is, "The Fallacy of Tonsillectomy by Diathermy as a Routine Measure," by Dr. M. R. Gibson, of Raleigh.

THE FALLACY OF TONSILLECTOMY BY DIATHERMY AS A ROUTINE MEASURE

By DR. M. R. GIBSON, Raleigh

Some three years ago when removal of tonsils by diathermy had gained its height in popularity and was being done by well trained laryngologists, I became interested in the work. I decided to secure instruction from some capable throat surgeon and determine for myself the merits of this method of tonsillectomy. After observing a number of cases of tonsillectomy by diathermy and removing some myself, I entered upon the work feeling that I had mastered the technique of the operation.

I have now removed sufficient number of tonsils by this method to justify an opinion as to the advisability of using this method as a routine measure as recommended by some. I have gotten very satisfactory results in the removal of tonsils by diathermy in patients from twelve to sixty-five years of age. Tonsils can be removed entirely very satisfactory with the proper technique. There should be no scarring of tissue and the pillars should be left in normal condition. When the tonsils are a source of infection and causing neuritis, rheumatism, albuminuria, etc., quite frequently these symptoms improve materially after the first treatment by diathermy.

Depending upon the size of the tonsils, their removal requires from three to six applications of the usual amount of treatment. The treatments are given under topical application of some local anesthetic of choice. When the anesthetic is well chosen and applied properly, there is usually very little pain. About twenty minutes are required for the preparation and treatment of the average patient, about the same amount of time that is required for a tonsillectomy under either local or general anesthetic. Following each treatment there is some discomfort, no great amount of pain, and there is a bad taste and odor due to sloughing, to contend with for a few days. This can be overcome by the use of a mouth wash and aspergum. As a usual thing my patients have remained on their regular diet and have continued to work following their treatments. In most cases there is no bleeding during the treatment or following, but there is a possibility that in the sloughing of tissue following the operation, one of the arteries of the tonsil may slough and a profuse hemorrhage may be the result. I have not had sufficient hemorrhage in any of my cases to cause alarm, but there have been cases reported that bled so profusely that blood transfusions were necessary. This being true, the adoption of the method on the grounds that it is a bloodless method for removal of tonsils is not in accordance with the facts. I will say, however, that

the majority of the cases will go through the entire procedure of removal of their tonsils without any loss of blood whatsoever.

Sufficient time, ten days to two weeks, is allowed to lapse between treatments for the tonsils to heal, so that at the succeeding treatment the throat will not be especially tender or sore. By waiting for the tonsil to heal there is naturally less congestion and less blood on the field of operation to interfere with the diathermy treatment. When time is allowed between treatments, as just stated, and the tonsils are large, necessitating six or maybe seven treatments, you can easily estimate that it will require from two and one-half to three months to remove the tonsils entirely.

I shall at this time say that physicians without knowledge of throat surgery are not competent to remove tonsils by diathermy. Of all the cases that have come under my observation done by men other than throat surgeons, I have yet to see a creditably done tonsillectomy by diathermy. I have seen the pillars, uvulae and even tongue scarred, and in some there was practically no evidence that any of the tonsil had been removed, though the patient had been told that his tonsils had been completely removed. This type of work will put any method of treatment in ill repute.

In addition to removing the unmolested as well as the partially removed tonsil by diathermy, I have had experience in treating hyperplastic rhinitis, cases where the turbinates were chronically hypertrophied, breathing difficult through the nose, with a great deal of success by diathermy.

I find diathermy especially well suited to the removal of tabs of tonsil tissue due to some previously imperfect tonsillectomy. I consider diathermy the method of choice for this procedure. It has to be a large piece of tonsil tissue to require more than one treatment for its removal.

Lymphoid tissue in any part of the throat can be readily and easily removed by diathermy and I feel that diathermy is the method of choice for this work also.

We very frequently find some very small tonsils in old people causing a chronic pharyngitis or possibly some systemic condition. I have found these are easily removed by diathermy and in some cases it is not necessary to remove all the tissue to get good results. I am especially well pleased with the results I got in a couple of treatments of small tonsils of old people. I attribute this to sterilizing the infected tissue. In every case where the tonsils have not been removed completely, the patient should be so advised and asked to return for further treatment in case further symptoms develop that might be attributed to the tonsils.

From my remarks those of you who have not had any experience with diathermy should get some idea of the practicability as well as the desirability of removal of tonsils by this method. We are all familiar with the various surgical procedures, too numerous to enumerate, all of which are good when performed by a surgeon understanding the technique of that particular operation. The thing, after all, in deciding what method to choose for tonsillectomy, is to do the one that can be done best by that individual surgeon and cause less inconvenience and discomfort, and is

safest for the patient. In certain physical ailments the surgical tonsillectomy is hazardous for the patient and diathermy treatment without removal might be very beneficial and safe, or the tonsil may be removed entirely by diathermy with very little danger.

In a very large majority of the patients where tonsillectomy is performed, the operation is not a great risk regardless of the method used. When a careful physical examination, and especially of a young or middle-aged person is made, and there is no reason to consider the surgical operation dangerous, I feel that it is the method of choice for the removal of tonsils.

Some patients will demand "tonsillectomy by diathermy" because of the novelty of it or claiming that they cannot be away from their work even two or three days. When this is the case you should do it, for if you do not, some shyster will pretend to and give the method another "black eye." I am of the opinion that diathermy is good in its place and if our group of surgeons will learn how to use it to its best advantage, that we will appreciate it.

In conclusion I express my opinion as follows: Diathermy has a place in the laryngologist's work, but by no means should it be the only means of tonsillectomy or of the majority of tonsillectomies of a throat surgeon. It should never be used in the removal of children's tonsils when a surgical operation is safe. It is the method of choice in removing the tonsils of old people with small, infected tonsils.

DISCUSSION

Dr. W. W. Sawyer (Elizabeth City): Mr. Chairman, I don't consider myself competent to discuss this paper. I have had but little experience with diathermy. I have been using a Westinghouse machine for three years. I have done possibly not to exceed 100 cases. And those cases that I have attempted to do by diathermy have been the severe heart lesions, tuberculars and hemophiliacs. In some of my cases, I am very glad that I did them in that way and know that I have gotten a clean tonsil fossa, but I will say that I am not satisfied that we should do the majority of them in this way.

I have found, though, in a number of those cases where I could not do surgery and used diathermy that I got a good deal of relief from these symptoms and rheumatic conditions and the milder heart lesions.

As far as hemorrhage is concerned, I haven't seen one so far, I am glad to say. I know some who have.

I find the main use for diathermy is in removing the small tabs that are left in tonsillectomies and the benign growths.

Thank you. (Applause)

Chairman Peery: Is there any further discussion of Dr. Gibson's paper, gentlemen?

Dr. Jos. B. Greene (Asheville): Perhaps I shouldn't speak on this subject because I have had no experience with this subject, but being in

Asheville I see a number of patients who come to me from elsewhere and up to this time I have never seen a successful tonsillectomy by this procedure.

A few months ago a man came in to me from New York bragging about his diathermy treatment and I remarked to him at first, "This is the most perfect operation I have ever seen."

On retracting the pillar I found a small piece of tonsil left there and I said to him, "I was mistaken. This isn't a perfect operation, either."

Then he remarked that the surgeon had told him he would have to come back later for further treatment.

The advantages that have been offered for this is that it is painless. The patients I have seen that have been treated by this method haven't had that experience. It hasn't been painless.

They have argued, too, that there is no hemorrhage. Dr. Gibson here, speaks of severe hemorrhage following the operation, due to slough.

Another indication that Dr. Gibson spoke of was age. In my experience, old people stand local tonsillectomies by the usual surgical procedure as well as people of younger age. I have operated on people age 71 and 72 and they got through perfectly well.

As far as hemophiliacs are concerned, I wouldn't operate by any method if they are actual bleeders, I mean, hemophiliacs in the true sense of the word.

So, sizing the whole situation up, I should say the indications for diathermy are very few, except in the removal of tabs such as Dr. Gibson referred to, and even in those cases actual cautery is equally satisfactory. (Applause)

Chairman Peery: Is there any further discussion of Dr. Gibson's paper?

Gentlemen, I refrain from talking so much but I just happen to know a general practitioner who used diathermy in a hemophiliac and he had one "sweet" time. He lived with that patient for two weeks, and finally brought him through. (Laughter)

If there is no further discussion I will ask Dr. Gibson to close.

Dr. M. R. Gibson (Raleigh): I have nothing further to say, except the fact that I do not wish the Society to get the impression that I am looking for every tonsillectomy to be treated by diathermy. Or I might put it another way and say that out of every five or six tonsil cases that apply to me and want diathermy, not over one gets it. I advise it in those cases where I feel that the tonsils can be thoroughly removed and where there are some indications for doing it.

Chairman Peery: The next paper is, "Bilateral Lympho Sarcoma of the Tonsils," by W. W. Sawyer of Elizabeth City.

Dr. W. W. Sawyer: Mr. Chairman and Gentlemen: This is just a case report of bilateral lympho sarcoma of the tonsils. I thought I had two cases to report to this Society but there is such a difference of opinion among the pathologists that I shall only report one of the cases.

BILATERAL LYMPHO SARCOMA OF THE TONSILS
(Case Report)

By W. W. Sawyer, M.D., Elizabeth City

I wish to briefly report a case of bilateral lympho sarcoma of the tonsils that came under my observation September, 1924. E. G., age 27, a World War veteran, a bookkeeper at one of our local banks. This patient was referred to me by one of our local physicians.

On examination this patient was very anemic and underweight. He gave a history of having had rheumatism for the last three or four months. He had had the diseases common to childhood, but gave a history of good health until he developed an acute attack of tonsilitis two weeks previous to the time he developed rheumatism. Wassermann was negative, hemoglobin 65 with a very slow coagulation. His sinuses were clear, nose negative. His tonsils were very much enlarged, of a light clay color, simulating lypoma. A number of crypts in each tonsil especially in the upper pole. There was an excessive amount of saliva. I found one enlarged gland at the angle of right jaw about the size of a small marble. This patient did not complain of any pain from the gland or throat. He complained mostly with an excessive amount of saliva and quite a good deal of difficulty in swallowing. He felt sure that he could notice that his tonsils were gradually becoming larger.

After ten days treatment with calcium and Blaud's we decided to operate. Under horocaine (½ of 1%) infiltration with dull dissection and Eves snare I removed the tonsils intact. I did not lose more than a drachm of blood in the two tonsils. In a few days he seemed to have made a complete recovery and had been relieved quite a good deal in his rheumatic condition. As he wished to keep the tonsils and show them to an uncle of his in an adjoining county, who is a physician, I put them in alcohol.

Three months later this patient called me in regards to an excessive bleeding of the nose. As I could not find any bleeding points I packed both nares and nasopharynx thoroughly and I found a mass in Rosenmuller's fossa, dark brown color about the size of an acorn. In trying to get a section, with a punch for biopsy he started hemorrhaging freely which gave me quite a good deal of concern to control. My diagnosis at this time was either sarcoma or fibroma. As he wished to go to Johns Hopkins hospital, I referred him to Dr. Crow who agreed with my diagnosis—fibroma. Dr. Crow sent him over to Dr. Burnham and Kelly for a biopsy and X-ray treatment if indicated. A biopsy was made and the laboratory findings was lympho sarcoma. A few days later a section of both tonsils were shown to be lympho sarcoma.

This patient was treated both with X-ray and radium for several months. The nasopharyngeal condition apparently cleared up entirely after the second treatment with radium.

This patient finally died twenty-one months after the removal of his tonsils from metastasis of the intestinal tract.

The most interesting thing in this case to me was that there was no return of the growth involving either the nose or throat and no hemorrhage during the removal of the tonsils.

DISCUSSION

DR. V. K. HART (Charlotte): I think this paper merits some comment.

A few months ago I reported in the *Southern Medical Journal* quite an unusual case of malignancy of the tonsils—perhaps some of you saw it—which I shall briefly recount.

The man had a melanoma. This was taken off by a quack doctor with a plaster. A few months later he had a mass in the inguinal region.

He came into my office one day with a friend and said, "By the way, Doctor, I wish while I am here you would just take a look in my throat. There is something tickling there."

I looked in the pharynx and here was this large brownish black pigmented mass enveloping most of the tonsil. I did an immediate biopsy and the pathologists returned a diagnosis of malignant melanoma of the tonsil.

That was the first case I had ever seen. In looking up the literature on the subject I find it is very rare. There have been very few cases reported. There have been a few reported in this country but I think, as a rule, that malignancy of the tonsil is a rather discouraging thing to handle, whether it be carcinoma, lympho sarcoma, melanoma, or any other type of malignancy.

To me, this has been a rather interesting case and it appeared bilaterally, from the history, simultaneously which is rather hard to understand. I might say the patient whose history I have recounted only lived about six months despite massive heat and X-ray therapy.

CHAIRMAN PEERY: We are not going to call on Dr. Coleman quite yet. Dr. Motley is next after Dr. Coleman on the program and we are going to ask Dr. Motley to give his paper now, on "Complications of Mastoiditis—With Special Reference to Septicemia." (Applause)

COMPLICATIONS OF MASTOIDITIS WITH SPECIAL REFERENCE TO SEPTICEMIA

By FRED E. MOTLEY, M.D., Charlotte

This analysis of approximately four hundred cases of surgical mastoiditis which have been observed during the last ten years at the Charlotte Eye, Ear and Throat Hospital, may be of value and interest.

In classifying the complications of mastoiditis, the usual routine of listing the common findings such as meningitis, brain abscess, labyrinthitis, Gradenigo's syndrome, etc., will be followed and those cases with unusual findings, or in which some problem out of the ordinary occurred, will be mentioned. A detailed account of the cases of lateral sinus thrombosis with septicemia will be given.

KIDNEY

With regard to kidney complications: there have been a great number of cases of nephritis of varying degree, also of pyelitis, but most of these have quieted promptly, following the clearance of the mastoid and upper respiratory infections, and in only three cases has it been a serious factor. One of these was a young woman who died with a progressive hemorrhagic nephritis and gradual diminution of kidney function, three months following dismissal from the hospital with a healed mastoid. The second patient was a small child who is still under observation by the family physician for an intermittent flaring nephritis. The third patient was a small boy whose case will be taken up in detail later under the heading of septicemia.

DIABETES

There have been four patients with diabetes. One of these was an elderly woman who was operated under local anesthesia, and with careful medical attention had a rapid recovery. Another young woman with a very severe diabetes cleared up rapidly with regard to her mastoid, but developed a gangrene of the leg which necessitated amputation about one month following her dismissal from the hospital with the mastoid healed.

MALIGNANCY

There has been only one case of malignancy involving the mastoid. The type of tumor was never exactly ascertained, although several microscopic sections were studied. It was a type of malignant growth originally from the parotid gland, which invaded the mastoid region and also the tissue of the neck under the mastoid. We did not feel that surgery would be of any great value, and even in attempting biopsies controlled hemorrhage with difficulty. The case was treated by deep X-ray for two years before death intervened.

"PEDIATRIC" MASTOID

Five or six years ago some papers were read and discussed before this section on the pediatric mastoid problem. The weight of opinion of the State Section was greatly in favor of this condition as a prevalent disease which necessitated mastoid surgery. We still hold to the opinion we held then: that the diagnosis of pediatric mastoiditis was greatly overworked. We have seen but five cases in the last ten years of diarrhea and gastro-intestinal toxemia, accompanied by mastoid signs. Two of these cases of so-called pediatric mastoiditis recovered—three died. However, in none of these cases was there the so-called occult or hidden mastoiditis, but all of these patients had a frankly discharging ear, and, strange to say, of the two cases that recovered, both had definite mastoid pathology.

PREGNANCY

There have been four pregnant women in this series of four hundred cases, the time of pregnancy varying from three to eight months, and in no instance has there been any untoward complications.

SYPHILIS

There have been six patients of this group with an active syphilis with a four plus Wassermann. The healing was slow, and it was necessary to do dressings over a long period of time, until by treatment, a negative Wasserman was obtained.

TRAUMA

There were three cases in which trauma was a deciding factor as the cause of the mastoiditis. Two of them showed definite fracture of the cortex of the mastoid with a secondary infection, necessitating mastoidectomy.

AGE INCIDENCE

We usually think of mastoiditis as a disease occurring in childhood or young adult life. This has been shown true in this analysis of cases, but there are seven patients of this series over sixty years of age, one of them being seventy-eight. Five of these seven patients were operated under local anesthesia. Although we were able to do the operation under local anesthesia, it must be admitted that in most instances, the removal of the brittle sclerotic cortex (which occurs in most elderly people) by rongeurs and mallet and gouge, was very unpleasant. I might state that we were very conservative in regard to these elderly people, and operated only as a last resort because of extreme pain and the threat of a possible intracranial complication. One of these two elderly patients operated upon under ether developed a hypostatic pneumonia immediately following his anesthesia, from which he recovered. Those done under local anesthesia had a rapid recovery and were ambulatory the day following operation.

OTOSCLEROSIS

There was a young woman with an otosclerosis who came in for a mastoid operation and had an uneventful convalescence, but we feel it worthwhile to mention that her loss of hearing was rapid following the operation, even though the drum rapidly returned to its normal lustre and appearance with only slight scarring evident.

EXTERNAL INFECTION AS A CAUSE

Two patients developed mastoiditis from an external infection—one from an extensive furunculosis, and one from an erysipelas which extended down the canal and involved the middle ear. The destruction was extensive, and the first patient with the furunculosis died subsequently from an osteomyelitis of the skull. The second patient recovered after a rather stormy convalescence, although operation was not done even with definite destruction, until the erysipelas had subsided.

FACIAL PARALYSIS

There have been seven cases of facial paralysis in our series. Four of these patients had some facial weakness immediately following operation.

Three of these showed a slight weakness in the muscular activity of the face lasting only for three or four days. In one of these patients a radical mastoid was done and a sequestrum found, forming practically a collar around the facial nerve. Because this patient also had a labyrinthitis, it was deemed necessary to remove this sequestrum, even though it was known that a possible permanent facial paralysis might result. The paralysis, which was complete, gradually cleared up in about a year's time. The other three cases of facial paralysis showed their involvement before operation, and all but one of them cleared up immediately following operation. This young woman, who now has the only permanent facial paralysis in our record, had a radical mastoidectomy on account of the chronic otorrhea with cholesteatomata and facial paralysis. There was a blackened sequestrum of bone lying along the tip of the facial ridge extending down under the horizontal canal at operation. It seemed impossible at the time to remove the sequestrum without opening the labyrinth, and as there were no labyrinthine symptoms or signs, we felt that it would be unwise. Her facial paralysis has cleared to some extent but there is still an evident droop in the corner of the mouth and she will not permit a second operation for attempted removal of this sequestrum.

INSANITY

It might be of interest to state that we operated on two insane patients in this list. The postoperative care was managed without unusual difficulty except for a few startling and amusing scenes.

HEMORRHAGE

There have been three cases of serious hemorrhage. The first of these was a woman with a lateral sinus thrombosis and septicemia. About ten days following operation there was a serious hemorrhage from the mastoid wound, soaking the bandage and assuming serious proportions. It was finally controlled by packing and transfusion. The second was in a small boy who had a mastoidectomy with no sinus or dura uncovered. There was a serious long sustained hemorrhage, coming from the eustachian tube on the operated side, which lasted for three days. Transfusions were given. The hemoglobin was as low as thirty-seven per cent and the red blood cells were brought down to one and a half million. The third patient was admitted to the hospital late one evening with an evident mastoiditis, lateral sinus thrombosis and septicemia. Operation was planned for the following morning. During the night he died in a few minutes from a profuse hemorrhage from the external ear on the affected side.

BENIGN GROWTHS

There are two cases which are worthy of mention and of unusual interest because of their rarity. The first is that of a large dermoid cyst which was encountered while operating on a postaural abscess in a two-year-old child. This dermoid cyst came from the dura, and was between

the fibrous layers of the dura in the postauricular region over the cerebellum. This was in no way connected with the postaural abscess or mastoid pathology and it was rather startling to the operator when encountered. It was successfully dissected out and there were no untoward events in the postoperative care. The second case is that of xanthomatosis encountered in a small girl. She had several draning fistulae around the ear, and had had seven previous operations by different general surgeons and otologists. It was quite evident that she had an infection in the mastold. At operation the entire temporal bone, even in the petrous tip, had been replaced by a rather dense mass of granulation tissue. I do not think I have ever encountered such distortion of anatomy and destruction Because of the unusual character of the granulation tissue and of the destruction, this material was sent to a pathologist for examination. A report was returned "infected granulation tissue with pyogenic membrane." There was a cessation of discharge from all the fistulous tracts and a rapid recovery. In one year's time the child returned with a swollen area in the occipital region. X-ray and clinical study of this case revealed that we were dealing with xanthomatosis, and that my first operation had been done on an infected mass of xanthomatosis tissue. The child is still under treatment and observation by several pediatricians and roentgenologists.

MENINGITIS

There has been twenty-one cases of meningitis seen. For our purpose these cases of meningitis may be divided into two classes—those with bacteria in the spinal fluid and those without. There have been eleven cases in which bacteria have been found in the spinal fluid. Only one of these has recovered. Of the second class—that without bacteria (which is sometimes called meningismus, or localized meningitis, or meningeal irrigation), we have had ten cases with ten recoveries. We have been able to add but little to our armamentarium in the management of meningitis for the last ten years. Early and radical removal of the origin of infection is done. Dura is always widely exposed. Free drainage by lumbar puncture and sometimes cisternal puncture is done. Neurological and medical consultations have been asked for. We have watched with a great deal of interest the result of Dr. Kolmer's work on intra-carotid injection. Experimentally this treatment gives hope for some of these cases. However, we have not been willing to try this method on our patients as yet.

BRAIN ABSCESS

There were three proven cases of brain abscess in this series and two suspected cases. The two suspected cases died with a fulminating meningitis before localization, search, and drainage for a brain abscess could be done. The three proven cases all were in the temporo-sphenoidal lobe—two with recovery and one death. The Mosher copper drain was used in every instance.

ENCEPHALITIS

Along with the meningitis and brain abscess cases there is another type of case which we will classify as encephalitis with choking of the discs. There have been four such cases. These have greatly simulated brain abscess cases. Spinal fluid cell count has varied from twenty to one hundred—all the cells being lymphocytes with a marked increase in globulin. These patients have all suffered greatly with headaches and have had nausea and vomiting. The choking of the discs has varied from two diopters to as high as nine diopters. In the last mentioned case there was extreme swelling of the disc. Operation was urged by the consulting ophthalmologist and the neurologist. The patient had been discharged from the hospital one week following a healed mastoid and postaural abscess. Due to the fact that the lesion was supposed to have been in the right temporo-sphenoidal lobe, there were no definite localizing symptoms. As in all these cases, the dura was widely exposed, but in this instance a crucial incision was made and search was made throughout the temporo-sphenoidal lobe for an abscess. No pus was encountered, but there was found edema and congestion (or a wet brain, as the pathologist calls it). Within two weeks following the operation there was a large fungating hernia of brain tissue. There was prompt subsidence of the choked disc. Because I felt there would be a secondary infection of this fungating hernia with a fatal terminal meningitis, I did another operation removing the hernia at its stalk and attempted closing the dura and superficial tissue hoping for primary union. This occurred and the child has been well for three years. Although no brain abscess was encountered, I have the consolation of the ophthalmologist's opinion that a great deal of useful vision was saved for this patient. We feel that these cases have been of unusual interest, and the possibility of this complication should be kept in mind in making a differential diagnosis of brain abscess.

LABYRINTHITIS

There have been nineteen cases of labyrinthitis encountered. Twelve of these occurred in cases with chronic otorrhea, and radical mastoidectomy was done. The pathology was demonstrated in every instance by the finding of a fistula or sequestrum on the suspected side. In the seven cases with acute mastoiditis, there was extensive destruction with invasion of the para-labyrinthine cells. In every instance there was a marked disturbance of equilibrium for some time following operation, until there was compensatory adjustment and control from the other functioning inner ear. In practically every instance there was total loss of hearing, or at least serviceable hearing. We have not found it necessary to do any surgery on the labyrinth itself, but in every instance there has been a recovery with a less serious surgical step than a labyrinth operation, such as that suggested by Hinsberg or Newman of Vienna. In four of these cases there was evidence of meningeal irritation, and in the four patients

who died, there was evidence of meningeal involvement with bacteria present in the spinal fluid before operation.

GRADENIGO'S SYNDROME

Gradenigo's syndrome (paralysis of the sixth nerve, with irritation of the ganglion of the fifth cranial nerve, accompanied by definite signs and symptoms of mastoid involvement) was found in eight cases. Three of these occurred in connection with chronic otorrhea, and radical mastoidectomy was necessary. The remaining five cases started in connection with an acute mastoiditis and thorough removal of all diseased bone with removal of all cells as deep in the petrous tip as could be reached was attempted. We have kept in mind, but not used, the surgical approach suggested by Kopetsky and Almour in their recent article on petrositis.

RADICAL MASTOIDECTOMY

In this series of four hundred cases there have been thirty-five radical mastoidectomies done. We feel that our attitude in regard to radical mastoid has been an extremely conservative one. In nineteen of these radical mastoidectomies there has been threatened intracranial complications demanding adequate surgery for permanent relief from danger. Seven of these cases were done in an attempt to obtain relief from a discharge from the ear that was so foul it had become quite a social problem to that individual. In all of these last cases, various forms of conservative treatment had been tried over a long period of time unsuccessfully. In twenty-one of these cases a paraffin basket mold with skin graft was used successfully. We are very partial to this particular operative technic, because it has given us uniformly good results. Our percentage of dry ears has been quite high, and epidermatization has been rapid and uniform. The modified radical mastoidectomy, with a mastoid cavity thrown open to inspection through the external meatus, and the middle ear left as near as possible intact, has been done in two instances. Both of these were selected cases, and there has resulted no appreciable loss of hearing. In the usual radical mastoid we have been unable to make any great claim with regard to conservation of hearing.

LATERAL SINUS THROMBOSIS WITH SEPTICEMIA

There were thirty-two cases of lateral sinus thrombosis with septicemia encountered in this series. There have been six deaths in these cases —some of them due to a still further complication of meningitis or pneumonia, one of nephritis, others due to no other accountable reason than the inability of the patient to handle the septicemia. It is interesting to note that the X-ray substantiated the diagnosis of perisinus abscess, and reported definite destruction with probable abscess formation over the lateral sinus in all but two cases where X-ray was used. The surgical problem in these cases varied with the location of the thrombosis, with the type of infecting organisms, with the resistance and age of the patient.

In all cases of suspected lateral sinus thrombosis, the sinus was exposed widely, from above the knee down to as near the bulb as possible. We might state here that in all cases of suspected lateral sinus thrombosis, the sinus is widely exposed as the first operation. In a few instances where there has been a definite history of chills and wide fluctuation of temperature, and where we have found thrombosis (with pus coming from the lateral sinus), we have ligated the corresponding jugular vein promptly. If there is no external evidence of thrombosis, and the clot (if present) is a mural one, we have waited. In some of these patients it has not been necessary to tie the jugular vein. Usually if we feel there may be a fair chance of recovery of the patient without ligation, we do not ligate. Our results have justified this stand. In suspected septicemia cases with bilateral mastoiditis, and almost equal pathology, the Tobey Ayer manometer test has been used. In the eight cases where this has been used it has been of definite help five times.

The fact that it has not been of help in three cases was no fault of the test, but due to the fact that if there were a mural clot present, there probably was still free circulation past the clot or area of phlebitis. With regard to surgical accidents, the lateral sinus has been accidentally torn twice. In one patient there were no untoward symptoms. In the other patient, the right lateral sinus was found to be completely thrombosed, and was opened, the clot removed and both ends of the vein packed. On operating on the left mastoid, a large perisinus abscess was found, and in uncovering the lateral sinus its diseased and fragile wall was torn. This necessitated packing and obliteration of the vein. There was a meningitis present and six thousand cells in the spinal fluid, but no bacteria. In spite of the fact that there must have been a great deal of disturbance in the intracranial circulation, this patient recovered. There have been a few instances where, even after the removal of the offending clot in the lateral sinus and after ligation of the jugular vein, septicemia has continued. Here it has been our experience that even though we may think our first operation removed all the infection, if the patient is again taken to the operating room, the wound opened and thorough exploration made, it will be found that there has been extension of the thrombosis backward to the torcular or that the jugular bulb is filled with purulent material that cannot escape and that further drainage is necessary. Probably in no other complication of mastoiditis do we place so much reliance on laboratory procedures and in clinical pathological conference as in septicemia. So often there is destruction of hemoglobin with corresponding anemia. In instances it has dropped as low as thirty per cent. We have learned to dread the occurrence of a relative leukopenia in the case of a virulent septicemia. Most of our deaths have occurred in such patients. We have used foreign protein injections (of which omnadin is the most recently used) with good results and had a corresponding elevation in the leukocyte count. Blood cultures have been used to substantiate our diagnosis, although we have not allowed a negative blood culture to change our

clinical diagnosis, or to change our treatment, and have found to our satisfaction several times that a later positive blood culture could be obtained. It has been interesting to note the various changes, styles, or fads—if you like—in treatment of septicemia even during the last ten years. Before coming to Charlotte I did a great deal of work clinically in the operating room, and in the laboratory, on the use of mercurochrome intravenously as a means of treatment for septicemia. My work was in connection with and under the supervision of Dr. C. T. Porter who published some of the earliest work on the use of mercurochrome. We came to the conclusion after several years that the use of mercurochrome, gentian violet, acriflavine or Pregl's iodine, metaphen, and some others (all of which we have tried conscientiously), may have a place in the treatment of septicemia, but their place is a small one. First, in importance, I would place adequate and prompt surgery. Second, small but repeated transfusions. Third, good nursing and adequate nourishment. We have recently been trying some new work, not entirely original, (but following the ideas of Kolmer) in connection with a consulting pathologist, Dr. L. C. Todd, in transfusions from immunized donors. As soon as a positive blood culture is obtained the vaccine is promptly made and specific immunization carried out on a selected donor, such as a father or brother of the patient. Ten days' time at least is taken to prepare this donor. Some of the transfusions that are given in the meantime are given following a protein shock (obtained by the use of typhoid vaccine) and then the transfusion given six to eight hours afterward, so the recipient of the transfusion benefits from such immune bodies formed as are in the donor's blood. In two cases during the last year we were greatly pleased when unusually good results were obtained from an immunized donor. I can see no possible objection to this form of treatment insofar as the patient is concerned. It is true, sometimes the donors do object, but so far we have been able to over-rule their objections.

A lantern slide will be shown of a chart made of these septicemia cases. The following five cases will be taken up a little more in detail showing the temperature chart of each patient.

First Patient. For six weeks this girl, ten years of age, had had an unexplained temperature, headache and a complete change of disposition. She had had at the onset a slight cold, with slight pain in the left ear which lasted for one day. Although she was examined three times in the office over a period of six weeks, both ear drums and mastoids were normal and there was no pathology so far as the ears, nose, or throat were concerned. Neurological consultation was requested, and a tentative diagnosis of encephalitis was made. The patient, however, would not remain in the hospital for observation. Finally after six weeks she was admitted to the hospital and the Tobey-Ayer spinal manometer test was made. This examination disclosed a completely blocked left jugular vein. The spinal fluid showed 72 cells present—all lymphocytes. At operation the mastoid was entirely negative. Exposure of the lateral sinus revealed thrombosis

with free pus in the jugular bulb. The jugular was ligated and there was rapid recovery of the patient. This case is reported in detail because the infection necessarily traveled directly through the floor of the middle ear to the jugular bulb without involving the mastoid, and all middle ear pathology had undergone complete healing and resolution, leaving a normal drum. These cases are rare.

Second Patient. This boy had an acute exacerbation of a chronic otitis media in 1930. At this time he had a mastoiditis with lateral sinus thrombosis and septicemia. After a jugular ligation and mastoidectomy, he had a stormy convalescence. His septicemia was complicated by nephritis and pyelitis. However, he was discharged from the hospital well. Three years later he was admitted to the hospital with an acute otitis media on the same side with severe pyelonephritis. There was no sign of recurrent mastoiditis in the operated ear although there was a slight mucoid discharge through a large perforation in the drum. This boy died in nine days with a septicemia and a severe pyelonephritis. His infection must have been carried into the blood stream from a retrograde phlebitis following back around the torcular to the other side; or, through either the superior or inferior petrosal veins which may have been open. This case is reported because I feel if I had another opportunity to manage such a case, I would re-open the mastoid wound and rule out the possibility of a retrograde phlebitis. This is the only case I have been able to find reported in which there was a recurrence of septicemia after an interval of several years on the operated side, where the jugular had been tied.

Third Patient. This patient was admitted with a fulminating acute mastoiditis. He had one of the most severe cases of sepsis that I have ever seen. He seemed to do well for a short time after his ligation while we were supporting his with transfusions. However, when his sepsis continued, further exploratory operation was refused because the mastoid wound, and the neck wound had been fully healed for one week. I feel we should have urged more strongly and taken a firmer position with regard to re-opening the mastoid wound. The patient died thirty-seven days following operation.

The last two patients are reported principally because of their recovery (which seemed well nigh hopeless) and the cessation of the septicemia dated following immunized transfusions.

While we are reasonably familiar with the literature we have not attempted to quote or discuss various opinions of authorities on these subjects. This paper was written as an analysis of our own cases and not with the idea of giving a picture of the history and progression of the surgery in complications of mastoiditis or septicemia.

DISCUSSION

Dr. Joseph B. Greene (Asheville). Mr. Chairman and Members of the Section: I appreciate very much the thorough presentation of these

400 cases by Dr. Motley, and I am afraid I have very little to add because he has been so complete in his presentation and so successful in his results.

It is very natural that he should take the sinus thrombosis with septicemia as the burden of his paper because it is the most frequent of the serious complications—sinus thrombosis in association with mastoiditis.

I would place the brain complications in this relationship: sinus thrombosis first, meningitis second, and brain abscess third.

It seems to me that brain abscess is a condition that occurs more frequently in chronic mastoiditis and chronic middle ear suppuration than in acute mastoiditis which Dr. Motley was considering.

The question of diagnosis comes up. It seems to me that in young children and infants the question of chills is of less importance than in adults because young children do not give us the chills and the septic character of temperature always that adults do.

As to the differential diagnosis of sinus thrombosis, we have to think, when a patient has a leucocytosis with chills and rise of temperature, of pneumonia. In other words, when a patient with mastoiditis has these symptoms we have to think of other things besides sinus thrombosis.

Erysipelas, associated with chills, is a condition which we have to consider because we know that erysipelas often begins with a chill. We have to think of pyelitis in making a diagnosis of sinus thrombosis, and malaria, too, in certain sections of the country, though not in this immediate section.

Another point Dr. Motley mentioned with which I am in thorough accord: the presence of blood stream infections is positive indication of sinus thrombosis and, as he says, the absence of it does not exclude sinus thrombosis.

Just a word in reference to the preventive treatment; I am referring now particularly to sinus thrombosis. Early opening of the drum membrane is always desirable to avoid mastoiditis and its serious complications. In operating on mastoiditis it is my conviction that we should be very careful not to expose the lateral sinus unless there are indications for so doing. I think careless exposure of it, sometimes associated with trauma of the wall of the sinus, is to be avoided at all possible hazards.

I think, furthermore, Mr. Chairman, that Dr. Motley's good results that he obtained in sinus thrombosis were due to his frequent transfusions. I am inclined to think that we are apt to put this procedure off too late, or ignore it, and in my opinion Dr. Motley's results as I say were due to early transfusions.

I wish to report two cases that I had of complicated middle ear disease, without destruction of the mastoid, complicated meningitis. In both of these cases (both of which were children) they developed meningitis with a fatal termination, without destruction of the mastoid cells, the infection spreading through the tegmen tympani.

It may be of interest to report to this Section that Dr. Hill Hastings of California in 1926 tied both jugulars, the only case on record, in association with a sinus thrombosis. He tied one jugular and about three weeks later the other mastoid became involved. He tied the other jugular and the patient recovered. It is the only case on record.

In closing I wish to express my appreciation to Dr. Motley for his interesting presentation. (Applause)

CHAIRMAN PEERY: Is there any other discussion of Dr. Motley's paper?

DR. JOHN W. MACCONNELL (Davidson College): Mr. Chairman: Generally we use only complimentary remarks in opening discussions of papers. If I had any criticism to make of this paper it would be, first, that it had enough material in it for a symposium rather than for one paper for a man to listen to without having a reprint of it in his hands. I wish I could have had the opportunity to read this paper before Dr. Motley presented it to us, but I got from his discussion the following points of interest—and I must say that I wish to congratulate Dr. Motley upon this presentation. He has been with us now in this state about ten years; he has done a large number of mastoid cases and he has complete reports on his cases; he reports here 400 cases of mastoid operation, with 37 radicals, which I would commend him for because it shows a conservative surgery. I have seen a number of these cases—I am not associated with Dr. Motley at all but I am so situated that I do see a number of his cases —and I must say that the conservative attitude he has assumed toward his mastoid work is to be commended. And then the results that he has had with his plastic work, his grafts in connection with his radical mastoids are as good as I have seen anywhere, and that is embracing a fair amount of territory.

The other point that struck me in the paper, and which I think we ought all to remember, is that in these cases of general sepsis we can't put much faith in injecting chemicals into the blood stream, acriflavine, mercurochrome, etc. I think it has been the experience of most of us that they are of little help.

On the other hand, the transfusions from the immunized donors have given the best results, and if we could all follow cases in that way I think we would get better results.

My own observation has been if I could ever get a patient to take nourishment in these cases of septicemia, and could get him to retain his nourishment, feed him, feed him extra amounts, he would have a better chance of recovery.

I think this is a very excellent paper. It has a large amount of material in it, 400 cases of mastoid operation, a large number to be reported in this state, and the success with which they have been handled is very gratifying. I wish to congratulate Dr. Motley upon his report.

CHAIRMAN PEERY: Is there any further discussion of Dr. Motley's paper?

Dr. V. K. Hart (Charlotte): I should like to supplement Dr. Motley's paper with just a few remarks.

First, it has been most interesting to me, being associated with Dr. Motley, to watch some of these cases, from the standpoint of labyrinthitis.

I think one of the best classifications of labyrinthitis is by Fischer, of Vienna. He gives six classes: First, the so-called diffuse serous internal labyrinthitis, which comes on with an acute ear and probably, he feels, is due to an infection of the endolymph by a low-grade organism. The patient loses completely the vestibular and cochlear function but Fischer says regains the function later, and I shall have occasion to refer to that in a minute.

Then the so-called para-labyrinthitis, which means diseased structures around the labyrinth with possibly a toxic disturbance, and the treatment here is certainly conservative, unless complicating a chronic otorrhea, when a radical is indicated—in the one I just mentioned possibly a thorough simple mastoid.

Then the third group is what Fischer calls a perilabyrinthitis internal purulent, which infection he believes invades the perilabyrinth in which he also advises conservative treatment. This usually happens in connection with the chronic otorrhea, and if you are going to do a radical mastoid you should certainly wait until the acute attack subsides.

Then there is a fourth group which he calls periotitis internal purulent with fistula, and which he divides into two groups: that which tends to stay localized, and that which tends to become diffuse. And here again he advises that the treatment during the acute attack be conservative, and radical mastoid later, unless you have a threatened intracranial complication.

Then a fifth group, internal otitis, purulent diffuse, without complication—and that is the type which I am particularly interested in, because that is the group in which the patient may completely lose vestibular and cochlear function.

Then a sixth group, internal purulent otitis, with complications, which is the group where we begin to get choking of the disc, Babinski, Kernig, and other neurological findings. We may, of course, in this group also get complete loss of cochlear and vestibular function.

The reason I mention this classification is this: that in the sixth group, with internal otitis purulent, Fischer says, do not operate unless you are going to do a radical mastoid operation plus a labyrinth operation.

I distinctly remember two of our cases, whom we had come back six months after thorough, simple mastoid, and wide exposure of both middle fossa and cerebellar dura, in which cases there was complete and total loss of cochlear and vestibular function. We must, therefore, place these cases in that group, because the loss was permanent, that is, a purulent diffuse internal otitis.

Our experience would, therefore, be at variance with the experience of these people who do labyrinth operations, because these patients made

complete and permanent recoveries with conservative, intelligent surgery. I have only seen one labyrinth operation done and that patient died of a meningitis. I have done several on the cadaver but I haven't yet had the courage to do one on a living patient.

As far as septicemia is concerned, I can add nothing to what has already been said, except to emphasize the fact that I think in medicine we often overlook the fundamentals, and I would only emphasize what has already been said: proper surgery, high caloric feedings, and repeated blood transfusion. When you have said those three things you have said the sum total of intelligent treatment.

A third group which has also interested me greatly is that group with an impending intracranial complication where they get a marked choked disc, which Dr. Motley has mentioned, and some vague neurological signs without any definite localization. You suspect a brain abscess. You operate and find nothing. And two of these patients of ours went on to recover despite that.

I should like to mention here that recently Cahill in Boston reported two patients with an aseptic thrombus, one of the torcula and one of the cavernous sinus, and both patients recovered, with conservative surgery. But I think the differential diagnosis in those cases is most important and sometimes very difficult to make.

And I would mention another practical point in connection with acute ears, and that is the frequency with which we find an acute sinus associated with an acute otitis media. Many of these patients come in with definite mastoid signs already present and our experience leads us to the conclusion that if attention is paid to the sinuses, and particularly the maxillary sinuses, and pus irrigated from the same frequently and as long as present, many of these patients will entirely recover without any radical surgery at all.

As to the radical mastoid, I would like to emphasize again that I think our attitude has been conservative, and I think it is not excessive to say that with intelligent, persistent management, probably fifty to seventy-five per cent of our chronic otorrheas will become dry—and I don't believe we pay enough attention to that. I don't believe we keep the patient under observation; I don't believe we try hard enough in some of these cases, and I am sure you have had the same experience that I have had: that even some of them with cholesteatoma get dry under proper management. But when you get your impending intracranial complications you are forced into radical surgery.

One last word as to meningeal complications. There is certainly a clean cut distinction between those cases who have organisms in the fluid on microscopic examination and by culture and those who have not and I would emphasize this point: if we do have a patient come in with an acute invasive process with, say, a spinal cell count running anywhere from three to as high as ten thousand, no organisms in the spinal fluid, and though the patient may have high temperature, convulsions, and all the

neurological signs, we are not justified in doing anything to that patient but a thorough and complete simple mastoid with wide exposure of dura, and wait for subsequent symptomology.

One of two things will happen: the process will entirely quiet down or we will get a localized abscess, either subdural or true brain abscess, and certainly the mortality will decrease as we wait patiently for localizing signs. (Applause)

CHAIRMAN PEERY: It is quite a long time since 1916. At that time we had a man on the staff of Memorial Hospital, Richmond, Va., whom the house men looked upon as being particularly careful and meticulous in working up his cases. He was then doing general and plastic surgery. We respected him. We loved him. From what we saw of his work, we had a very high regard for him. There was one thing about him that we didn't like: he always had some little fellow around there with his nose shot off, or some child with a huge scar on his neck, and in splints, who didn't smell good, and it required a good deal of time on our part to keep that child so we could live around him.

Since that time I have become interested, as an otorhinolaryngologist in intracranial infections, and several years ago I happened to be present in a meeting of otorhinolaryngologists to whom Drs. Saxe and Klemmie of St. Louis were giving the lowdown, as we considered it, on intracranial infections.

I asked Dr. Saxe this question, "Where do you get your brain abscesses?"

He said, "From the otorhinolaryngological service," as though it were just admittedly so.

I asked, "Where do you get your meningitis, excluding the epidemic form?"

The reply was, "From the otorhinolaryngological service."

Well, I didn't have to roll that over in my mind to accept it as a challenge to the otorhinolaryngologists.

When last year you saw fit to compliment me by making me your chairman, still being interested in intracranial infections, and considering it one of our major problems, the thought occurred to me, Whom do I want to talk to us this year? As I have the authority to select the speaker, I want someone to talk to us who knows something about intracranial infections, complications of mastoid, and sinuses.

Having followed Dr. C. C. Coleman's work, having advised quite a few patients to go to him, having followed his work in the American literature, and having seen particularly his brain abscess work quoted not only in the American literature but in the European literature, and having heard neuro-surgeons from all over the country speak highly of his work in brain abscesses, I decided I would like to have him come down here and talk to you, and I feel a particular honor in introducing to you Dr. Claude C. Coleman, of Richmond, Professor of Neurosurgery at the Medical College of Virginia. (Applause)

THE TREATMENT OF BRAIN ABSCESS

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The pathology of localized intracranial suppuration varies widely, and for the sake of accuracy, the type of abscess should be specified before claiming advantages for any particular method of surgical treatment. Multiple pyemic abscesses are nearly always fatal, and present no aspects of great surgical interest. Abscesses due to gunshot wounds, if solitary, have a better prognosis but even these have essential causes for a high mortality. Infection by highly virulent organisms may produce a rapid necrosis which the tissues of the brain are unable to encapsulate and resist. Treatment of this type of abscess is generally unsuccessful.

The discussion in this paper is restricted entirely to the encapsulated, subcortical abscess, which usually arises from infection of the accessory sinuses. These abscesses if successfully resisted by the brain tissues, pass through a stage of encephalitis which is followed by the formation of a capsule. With formation of the capsule, systemic signs of infection are likely to become quiescent, but we believe that it is exceptional for such cases to be free from cerebral symptoms, and therefore, there is a well-founded objection to characterizing the stage of encapsulation as a "latent" or "quiescent" stage of the abscess. It is difficult to recognize the first stage of abscess, and this is not of great importance surgically, because operation should not be done until after the formation of a capsule.

The results of operation are just as likely to be good in old abscesses as in the early stages of encapsulation, provided rupture has not taken place.

A review of the literature indicates a great improvement in the mortality statistics of encapsulated brain abscesses, and it is probable that McEwen's statement in 1893 that it is one of the most satisfactory of intracranial lesions, is likely to be verified in future experience.

There are now four recognized operative procedures for the relief of brain abscess: (1) drainage of the abscess through a small trephine opening with a short incision in the dura, and immediate or delayed insertion of the eye-end of a soft rubber catheter into the abscess cavity; (2) the osteoplastic flap exposure of the brain with drainage of the abscess, as advocated by Eagleton; (3) single or repeated tapping of the abscess without drainage of any kind, as recommended by Dandy, who believes that in encapsulated abscess the brain needs only a relief of tension to enable it to overcome the infection; (4) unroofing the abscess; that is, cutting away the cortex which overlies the abscess, as proposed by King in 1924. King believes that by his method, the abscess is everted by the coincident intracranial pressure. Drainage of any kind is therefore unnecessary in King's procedure.

In the enthusiasm for certain types of drain and ingenious devices to promote escape of pus from a brain abscess, important pathologic factors in the results of treatment seem to have been overlooked. It will be readily appreciated from the wide difference of opinion as to the preferable technic of eradicating the abscess, that this phase of the treatment is still unsatisfactory and that there are inherent risks attending drainage of any kind. In the series of cases considered in this discussion, we have used simple drainage with the eye-end of a soft, rubber catheter. The operation is nearly always done under local anesthesia and the drainage tube is inserted into the abscess cavity when the pus is first discovered, if no great difficulty is encountered in the insertion of the tube.

In a partial review of the literature, we have seen no important advance proposed in the treatment of brain abscess since McEwen published his monograph in 1893, if we except the use of local anesthesia, which is now in more or less general use. At that time he reported 19 cases of cerebral and cerebellar abscess with 18 recoveries. So far as we know, such a record has not been equalled by any of his contemporaries or followers. McEwen laid great stress upon the cleansing of the abscess cavity and he advocates closure of the wound without drainage in some cases of encapsulated abscess. He never used drainage in the acute cases. We can see no particular reason for the employment of an osteoplastic flap, which of itself may be quite a formidable procedure in patients suffering from severe compression. Eagleton believes that an osteoplastic flap permits a wider exploration of the cortex, and that piarachnoid collections of pus are discovered which otherwise might be overlooked. We have not met with collections of pus in the piarachnoid, and when a patient has signs of general intracranial pressure due to abscess, it is probable that the abscess is subcortical. It is much simpler and safer to make several explorations through a trephine opening in various areas of the brain in the search for abscess, than it is to make an osteoplastic flap. Occasionally an osteoplastic flap may be done because of the impossibility of differentiating between an abscess and a tumor. We have made an osteoplastic flap in two such cases, thinking that we were dealing with a glioma.

The method which we have practiced for some years with encouraging results, is as follows: After localizing the abscess by neurological study of the patient, a small drill opening is made in the bone and the dura incised for a distance of about 1 cm. In the cases which we have had, there was considerable pressure, and the dural incision was promptly plugged by the cortex. A ventricle needle over which is fitted a canula, is passed into the brain and the abscess wall is easily recognized in most cases by the resistance to the advancing needle. Sometimes considerable force is necessary to push the ventricle needle through the capsule into the abscess. A small amount of pus is allowed to escape through the needle. If the abscess is at a great distance from the surface (as much as 5 or 6 cm.), we have sometimes sought the abscess by a second approach, leaving the first needle in position until the second reaches the abscess

through a shorter route. If it is decided that drainage is to be made through the first trephine opening, and the abscess is at great depth, particularly if the capsule is dense, we have pushed the canula into the abscess cavity, withdrawn the needle and allowed the canula to remain for drainage. On several occasions we have had difficulty in inserting a catheter into the abscess cavity after withdrawal of the ventricle needle. This formerly gave us great concern, for we believe that it is at this stage that processes leading to the death of the patient are most likely to be initiated. Precipitate efforts at drainage with large, traumatizing drainage tubes are likely to push the capsule ahead of the tube, allowing the pus to seep through the opening made by the needle into the brain tissues outside of the abscess wall. The resistance of these tissues, suddenly invaded by pyogenic organisms, is overcome and a septic encephalitis is initiated. We do not agree with Dowman that patients who die following operations for brain abscess generally die of meningitis, but that they have a septic encephalitis provoked by the surgeon's well-intended efforts, and while meningitis may be a terminal event, the primary cause is encephalitis. If we have difficulty now in inserting the drainage tube into the abscess cavity, we would not hesitate to close the wound entirely without drainage of any kind and wait for five or six days before attempting to insert the soft rubber catheter. In two recent cases this was done, and evidently softening of the capsule had taken place at the point of entrance of the ventricle needle, because the same type of drainage tube went into the abscess cavity through the same track at the second attempt without difficulty. I prefer to use a small drainage tube when it can be expertly and promptly placed into the abscess, but if there is much fumbling with the drainage tube and great difficulty is experienced in inserting it into the cavity, we should adopt the method of simple tapping without drainage, as advocated by Dandy. The most important feature in the treatment of brain abscess is the drainage of the abscess with the least traumatizing form of drainage material, and with the least difficulty. It is highly probable that a number of encapsulated abscesses may be eradicated by repeated tapping and one must be impressed by the fact in some cases that after the primary evacuation of pus, there is slight subsequent drainage, which may be largely due to reaction of the tissues to the presence of the drainage tube, and probably little or none comes from the abscess cavity. If, however, a small catheter is passed into the abscess cavity without difficulty, it should provide a factor of safety—not a part of simple tapping. In the cases that McEwen closed tightly, he emphasized the importance of removing completely all debris and pus from the abscess. But even such a radical procedure could not have removed the limiting pyogenic membrane, and after all it is probable that the important factors of success in the results of his treatment are identical with those of simple tapping.

King, in 1924, reported three successful cases treated by cutting away the cortex and allowing the abscess to extrude. McEwen recommended

this technic in certain cases, but he does not give the same explanation of its advantages as does King. It does not appear that this method is necessary in the majority of cases, nor that it would be applicable to deep-seated abscesses. The object of his method is to allow the abscess wall to be turned inside out by the intracranial pressure. This results in a fungus, which in itself is not a serious condition, provided it is not due to a progressive septic encephalitis. The method of King would seem to be more appropriate in extensive abscesses near the cortex, with necrosis of brain tissue and imperfect or no capsule formation. No form of drainage is satisfactory in such cases.

Much success in the treatment of brain abscess has been attributed by Cahill of Boston, to the Mosher cone-shaped, wire-mesh drain. Cahill advocates exposure of the dura and packing its outer surface with mercurochrome gauze for from 48 to 72 hours before inserting the drain. The object of this packing is to produce adhesions between the dura and the underlying arachnoid. It is hardly probable that packing of an unopened dura would produce adhesions, nor do we believe it is necessary to have adhesions between the dura and the underlying membranes. From the description and photographs of the conical, wire-mesh drain, it would seem to be unnecessary in the evacuation of an abscess, and that it would increase the trauma to the surrounding brain tissues. We have, however, had no experience of this method. Cahill's results are exceptionally good.

There are especially favorable types of encapsulated abscess arising from mastoid infection which are more or less superficial and often evacuated through the mastoid wound. The good results of treatment of these cases is due in a large measure to the completeness of primary evacuation, the absence of extensive trauma and the effects of gravity in promoting the continued escape of pus. All kinds of drainage have been used in these abscesses, with little adherence to established neurosurgical technic, and yet a high percentage of recovery results. The treatment of this type of abscess, usually close to the surface of the brain and often having a so-called stalk, offers no critical test of a technic for the cure of abscess in general. It is in the deep-seated abscesses that an error of technic is usually followed by a fatality from septic encephalitis, and if such cases can be eradicated satisfactorily there will be little difficulty in the treatment of the more superficial ones. The importance of the operative treatment itself should not cause us to lose sight of the after-treatment of these cases. Time and again we have been greatly disturbed by the course of the patient's recovery and we believe the good results finally obtained in these cases were due to our refusal to make any further attempts at drainage. The after-treatment of these cases is of the greatest importance. Once the drainage tube is in position, it is highly desirable that it should be left until there is no further need for it. In some cases, after more or less complete evacuation of the abscess with obliteration of the cavity by intracranial pressure, the drainage tube is extruded in a few days. To attempt to replace it with force seems to be unwise.

From our experience with a series of encapsulated abscesses and an analysis of the experiences of others, we have tentatively reached the following conclusions: (1) That there are a number of types of localized intracranial suppuration, and that treatment suggested for one may be entirely unsatisfactory in another of these types. Encapsulated abscess offers a good prognosis if accurately localized and properly treated. Under these circumstances we believe that recovery should be the rule in this type of abscess. (2) The cause of death from operated abscess is nearly always a septic encephalitis brought on by efforts at drainage of the abscess. There appears to be little danger of a fatality after partial collapse of the abscess, provided pus does not escape from the abscess into the surrounding brain tissue. (3) We prefer to drain encapsulated abscess, but we believe this drainage should be done through a trephine opening made under local anesthesia and that the type of drainage best suited, in our experience, is a small, soft, rubber catheter. It is important to approach the abscess at the point nearest to the cortext, but such a point cannot always be determined. We believe that simple tapping of an encapsulated abscess is to be preferred to drainage, if drainage is accomplished under great difficulty or when many attempts are necessary to insert the drainage tube into the abscess cavity.

In this series is not included subcortical abscesses from gunshot wound or those from infective embolic processes. The mortality in these types of abscess in my experience has been high, and have generally received little benefit from surgery of any kind.

In the fourteen cases of chronic abscess on which the observations in this paper are based, there were two deaths. A brief summary of the two fatal cases is of some interest.

Case 8. Male, aged 25, was admitted to Memorial Hospital with a large right temporal fungus. Upon a diagnosis of high intracranial pressure from brain tumor, a right subtemporal decompression had been performed in another city. This operation was followed by a breaking down of the wound and protrusion of brain tissue. The patient gave a history of chronic right frontal sinus infection. At the time he was admitted to my service he had violent headache, choked disc of 5 diopters with retinal hemorrhages, and was very stuporous. There was a fever, leukocytosis and other signs of encephalitis. The history indicated a right frontal abscess. An exploration of the right frontal lobe was made through a trephine opening and a thin-walled abscess discovered at a depth of 5 cm. About 15 cc. of pus containing staphylococci was evacuated. Some temporary relief followed drainage of the abscess, but the encephalitis continued. The patient died about six weeks after admission. Autopsy showed three abscesses, one of which had been drained. There was an extensive encephalitis with necrosis of the brain tissues in the temporal and frontal lobes.

Case 14. Male, aged 43, was admitted to the hospital with meningitis. The history showed that he had had aphasia for seven weeks, and at

times had been unable to call the names of his children. There had been severe frontal headache which was constant, and infrequently associated with nausea and vomiting. Ataxia of the right arm and fine tremor of the extended fingers had been noted. During a more coöperative period, a right homonymous hemianopsia was demonstrated, but there was no papilledema. Spinal punctures had been done and these showed considerable pressure, with an excess of globulin in the fluid. There had been no leukocytosis until the onset of meningitis. The pulse had ranged from 50 to 70. Marked weakness of the right side with dilatation of the left pupil, further accentuated a lesion in the left hemisphere. The tonsils were infected but there was no evidence of disease of the mastoid or other sinuses. The patient was referred to my associate, Dr. Lyerly, after the onset of a purulent meningitis, as determined by lumbar puncture before the operation. A ruptured left temporal lobe abscess was discovered and drained under local anesthesia. Death followed 30 hours later.

This patient was the only one in the series in which definite effects upon the visual fields had been determined before operation. In the majority of the cases, the abscess was so located, or else the patient so uncoöperative that no satisfactory perimeter examinations could be done. All of the patients with the exception of this case had choked disc.

It was necessary to do an air injection in Case 3, to determine the side involved. A young girl, aged 9, with no history of previous infection except a small pustule on the knee, three months before admission to the hospital. At this time she showed signs of high intracranial pressure. There were practically no evidences of pyramidal tract involvement. The child was very stuporous and uncoöperative. Ventriculogram showed the left ventricle to be dilated, with a shifting to the left, and no air entered the right. There was one feature of particular interest in this case: when the temporal bone was exposed, pus was found to be exuding through a pinpoint opening in the field of operation. In no other case of the series was there a spontaneous evacuation of pus through the bone discovered.

Cases 5 and 9: In these two cases an osteoplastic flap was made. Three operations were necessary in Case 5 before the abscess was finally discovered. About two months intervened between the first and third operations and the pus finally evacuated through the puncture made at the second operation. A troublesome osteomyelitis with ultimate recovery followed the osteoplastic operation. The largest abscess of the series was in Case 9. The patient gave a history of intracranial disturbance for at least 12 months, during most of which time he was actively engaged in the practice of law. The previous frontal sinus infection had not been given due consideration in the analysis of his symptoms, and the patient was thought to have a frontal lobe glioma. A large osteoplastic flap was made for exploration of the right frontal lobe. Through a small incision in the dura, a puncture of the frontal lobe was made after fracturing the base of the bone flap. A dense abscess wall was encountered at a depth of about 4.5

cm. The patient developed a large fungus and had a stormy convalescence, but made a complete recovery. Case 5: There were three small abscesses in this case, two of which were located at the first operation. The abscesses in this patient arose from a chronic mastoid infection. The capsules appeared to be very delicate and offered little resistance to the ventricle needle.

In a small series of 14 chronic abscess cases, there were 12 recoveries.

The method of drainage was similar in every case; that is, the eye-end of a small, soft, rubber catheter was used. The recoveries, except as indicated, have been more or less complete in all of the non-fatal cases. An effort was made to evacuate the abscess completely at the primary operation and no attempt was made in any case to wash out the debris or cleanse the cavity. The drainage following primary evacuation was so slight in some of the cases that we feel that it might have been omitted altogether. The tendency in the treatment of chronic subcortical abscess is to adopt simpler operative methods, and further progress may be expected along lines which, while securing the evacuation of the abscess, does not extensively traumatize and contaminate the brain tissues lying about the abscess-wall.

Chairman Peery: Gentlemen, the next paper on the program is, "Management of Convergent Squint," by Dr. H. H. Briggs, of Charlotte.

MANAGEMENT OF NON-PARALYTIC CONVERGENT SQUINT

By H. H. Briggs, M.D., Asheville

I am sorry that I have nothing new to offer you in this paper. This discussion has to do more especially with the operative treatment of convergent squint. If I appear too dogmatic it is for the sake of brevity. I should like however to give a brief review and résumé of the classification and non-operative management of esotropia before entering into a discussion of the operative phase.

First permit me to define fusion and amblyopia. The former, fusion, as you know, is the ability for binocular single vision or the faculty of fusing two objects to form one. Moreover there are different degrees of this from simple binocular macular fixation to stereoscopic vision and depth perception. Amblyopia, the latter, may be defined as a diminution of vision without apparent organic damage. Accommodation and convergence we know are intimately related and this we will keep in mind when we consider refractive errors.

For convenience, convergent squint may be divided into essential alternating and monocular esotropia.

In essential alternating squint there is no fusion faculty, the vision of the two eyes is approximately the same, and the patient fixes with either eye voluntarily or involuntarily. Refractive errors do not play an important role here nor does amblyopia, since this is not present. This type is

from the outset potentially operative and the results of treatment will be purely cosmetic.

With monocular convergent squint on the other hand, many of these factors are present and must be dealt with accordingly. Here, one eye is preferred and fixes, while the other eye turns nasally. The deviating eye is almost always amblyopic and may or may not fix when the good eye is covered. Refractive errors do play a part here in many cases and anisometropia and hyperopia are often seen. Fusion is not absent, however it is usually developed only to a low degree.

For the management of this group, refractive errors of any importance should be corrected first, and if the squint is of the accommodative type and of a low degree, this alone may bring about a cure. It is important to make the correction as early as possible and this has been done before the age of one year. Amblyopia may be treated by constant or intermittent occlusion of the good eye with a shield or the use of atropine. This causes the child to use the poor eye. After the age of six or seven the amblyopic eye rarely improves, although at times it does even in adults. This then is sufficient reason for early endeavor to correct amblyopia. By refractive correction and improvement of amblyopia many squints have become orthophoric without the necessity of operating. Fusion training can be begun when the vision of the poor eye has improved sufficiently to allow fixation, however there must be some fusion faculty present. The amblyoscope is used first for this and the stereoscope can be used best when the angle of squint is small, and often it is better to use this after operation.

Now we come to surgical treatment. This should be resorted to only after the other procedures have been tried, but when it is seen that an operation is inevitable, then there is no use to delay, and the advantages of operating early are: in the first place, the child early in life becomes self-conscious of his "cross eyes"; in the second place, diplopia, which is sometimes troublesome, is not a disturbing factor in younger children; in the third place, fusion training and correction of amblyopia can be more successfully carried out; and lastly, operation can be done before changes take place in the muscles to too great an extent, before atrophy and contractures have occurred, as well as changes in the other supporting tissues of the eyeball. Surgical intervention is not usually resorted to before the age of two years, but should be done before the age of six whenever possible.

How do we determine the type, the amount of operation and the muscle to be operated upon. These are difficult questions and ones about which there is much diversity of opinion. Jameson and many others consider that the internal muscle in convergent squint is primarily the overactive, hypertensive muscle and that the external muscle has become weakened secondarily. Certainly in this type of neuro-muscular anomaly, we do find, upon exposing these muscles at operation, a large strong internal rectus and a small weak external rectus. Assuming that the foregoing are correct, then it seems plausible to begin on the internal muscle. Although some

advocate almost the opposite, it was the experience of the men with whom I worked as well as others, that the results are better when the overactive muscle is attacked first, and there is usually more correction for the amount of operation done.

It has been almost universally agreed that a tenotomy is an inexact procedure and one that cannot be controlled, on the other hand, a recession is technically an exact procedure and the muscle can be set back to the desired amount. The criticism of a recession or retroplacement operation with scleral sutures has been that there is danger of perforating the sclera. There have been reported in the past cases where this occurred; however, most of these were in advancement operations and of recent years I know of no good operator who has had this experience. With the usual amount of care and the use of the proper needle, scleral sutures can be introduced without endangering the eye. The other criticism is, that there is often a breaking down of convergence. Again this need never occur if the operator does not become over-zealous in his attempt to obtain too great a correction and of course the attachment of the muscle to the sclera should never be made behind the equator of the eyeball. Care especially should be taken when double recessions are done.

It has been our policy to do a recession operation first on the internal muscle in all cases of so-called hypertensive squint, where the degree of squint for near is greater than that for distance. In these the amount of recession should be greater than when the squint is not of the hypertensive sort. Moreover, much can be told by the size and pull of the muscle when it is exposed, as to the amount of recession that is necessary.

One can expect to correct with a single recession operation ten to fifteen degrees of deviation and occasionally slightly more. A greater amount will require operating on two muscles, and most men prefer to do this at two stages unless the squint is unusually high. One should never attempt to gain a greater correction than the operation is worth. In cases of high amblyopia and high degree of squint where it is necessary to operate on two muscles, both are done on the poor eye. When there is great convergent excess with little amblyopia and the degree of squint is greater than twenty degrees, it is better often to do a recession on each eye.

For the shortening operation I prefer either my father's link tucking operation or a resection which I shall describe.

The recession or retroplacement operation is a modification of Jameson's original procedure and is practically the same as Wilkinson's method. It was from Dr. Simpson of Washington that I learned it as well as the resection operation. The recession or retroplacement operation is performed without the use of a muscle clamp and is done with the minimum amount of dissection. Chromic catgut is used for the scleral sutures and the conjunctiva is closed separately.

The advantages of not using a muscle clamp are, that the sutures may be placed nearer the insertion of the muscle, using some of the tendon that otherwise would be caught in the clamp; there is less trauma to the

muscle, and in local operations there is less pain since there is not the pulling on the muscle that occurs when a clamp is used. The advantages of the minimum amount of dissection are of course obvious. As concerns suturing the conjunctiva separately, there is less scar. Often when the conjunctiva is included with the scleral suture atrophy of the conjunctiva and tissue included with the suture occurs, leaving a white line that is certainly noticeable. By using catgut to suture the muscle to the sclera this leaves but the conjunctival stitch to be removed, and if this is also of catgut instead of silk then there are no sutures to remove. This is an advantage especially in younger children.

DISCUSSION

Dr. A. C. McCall (Asheville): I listened to Dr. Briggs' paper with a great deal of interest.

I think Dr. Briggs is absolutely right in advocating the advancement of resection because the abandonment of the old tenotomy I think is a pretty good argument. In fact, to do a simple tenotomy involves a simple question of whether or not you should do an operation, because an eye that has been turned sufficiently to require an operation has so weakened the opposing muscle that just a simple tenotomy (this is one objection to it) won't overcome much error. That muscle has been stretched so that it is ruined, unless the child has had it a very short time, and then it might strengthen up. The objection to a tenotomy is the loss of the muscle. If you ever have to look for one you will never do another.

I want to commend Dr. Briggs on the way in which he presented his paper. (Applause)

Chairman Peery: Is there further discussion of Dr. Briggs' paper?

Dr. W. P. Speas (Winston-Salem): Of course, I think it goes without saying that no one now ever does a simple tenotomy, because we never know what the result will be. It is just a guess and usually the patient will lose convergence, being worse off than if we had not operated on him at all.

As for the method we use to lengthen or shorten a muscle, that is a matter of choice, which is left to the individual operator. I feel that a man should select some method and stick to it and become proficient in it.

I feel also that where we do a shortening operation we should do on the opposing muscle a lengthening operation to correspond in amount, or else our results will not be what we had carefully calculated from measuring with the calipers.

Aside from the surgical treatment, there are some other elements in the treatment of squint which I don't think we should overlook. I know of no field in the practice of medicine where the personal element counts so much in the results we are to get as in the treatment of this condition. We have to deal with a young child and very often a highly nervous child. Not only that, but we have to deal with the parents of this child.

In the management of these cases, the first thing of importance is to get the child at a very early age.

It has been asked time and again at what age should we begin the treatment of squint. My answer to that is, just as soon as the diagnosis is made, the child should be put in the hands of the one who is to be responsible for the case and it should be left to him as to what procedure he is to follow and when these different procedures are to be undertaken.

The surgeon himself must be perfectly sold on the treatment of squint. He must be so enthusiastic in regard to the outcome, the possibilities, that he can convey to the parents some of his enthusiasm. Otherwise, he is likely to fall short of a complete cure. A complete cure is never accomplished until the child has perfect fusion, with convergence and accommodation working harmoniously together. Each case is a law unto itself and must be managed according to the necessities required in the carrying out of the treatment. Generally speaking, our attention should first be directed toward preventing amblyopia in the deviating eye, for fusion which must be developed somewhat later, is dependent upon a certain degree of visual acuity.

As you know, amblyopia is developed very early in life. The earlier a case of squint develops, the more quickly the deviating eye becomes amblyopic. It is not uncommon for a deviating eye in a small child to lose almost entirely the power of fixation in from two to three months. So that if we do not get these cases very early, we lose the opportunity of developing fixation, and consequently the power later of developing fusion.

It is a good plan to get the parents into our office—both parents, not simply one—and get them sold on the possibilities in the case, the importance of carrying out treatment, not merely a surgical operation or the fitting of a pair of lenses, but also working to prevent amblyopia and developing fusion over a period of months and, if necessary, years, to accomplish the end which we have set out to accomplish.

If we do this and are patient and tactful we can render to these patients a service which will be worth a great deal to them as long as they live. (Applause)

Chairman Peery: The next and final paper is, "Mikulicz's Disease—Report of a Case," by Dr. William S. Jordan, of Fayetteville.

MIKULICZ'S DISEASE: REPORT OF A CASE

By W. S. Jordan, M.D., Fayetteville

Because of the relative infrequency of this condition, and because the nature of the case described in this article fits so well in the category of the subject it is herewith presented for your consideration.

In a study of the subject one cannot fail to be impressed with the confusion that exists in regard to it. One reviewer of Mikulicz's original article said that Mikulicz described the condition as an entity. Another said that Mikulicz recognized that it was a syndrome and not a disease.

Another point, indicating the variety of findings in reported cases, was noted concerning the attachment of the lacrimal gland tumors. One said that the lacrimal gland was "apparently fixed to the wall of the orbit." Another said that the lacrimal glands were freely movable. It should be stated, however, that the latter regarded the trouble in his case as being syphilitic and classified it as belonging to Mikulicz syndrome.

Barclay gives the following description of Mikulicz's disease proper: "It consists in a chronic, painless, progressive, bilateral enlargement of the lacrimal, parotid, submaxillary and sublingual glands. The glands are not adherent and show no tenderness or other sign of inflammatory involvement. The enlargement is idiopathic, benign, and usually occurs in young adults, though no age is exempt. There is no tendency to recurrence. There is no fever nor malaise, and, apart from mechanical difficulty in moving the eye-lids or eye-balls, possibly lacrimation, and dysphagia due partly to dryness of the mouth, the only complaint arises from disfigurement. There is no evidence of disease in the lymph glands or blood, nor is the spleen enlarged. The process usually begins in the lacrimal glands and progressively attacks the others."

Mikulicz could discover no cause for this condition, but it was his opinion that it was due to some infection.

So many variations of the above symptom complex have been reported under the title of Mikulicz's disease that it was inevitable some effort at classification should be undertaken.

Thursfield divided the pathologic condition into (1) Mikulicz's disease proper and (2) Mikulicz's syndrome. Under the disease proper he included cases of involvement of the lacrimal glands and of one or more salivary glands without any ascertainable cause. Under the syndrome he placed cases in which an associated condition was found in the lymphatic and hematopoietic systems.

Howard classifies cases showing Mikulicz's syndrome of idiopathic occurrence into three groups, as follows: (1) Mikulicz's disease proper, in which the characteristic features of the syndrome are found as detailed above; (2) Pseudoleukemia, in which, in addition to the features found in group one, there is enlargement of the lymph glands throughout the body, and possibly the spleen, but no other evidences of leukemia; (3) Leukemia, in which, in addition to the features found in group one, are the general enlargement of the lymph glands and spleen, a typical leukemic blood picture, and the other clinical features of a true lymphatic leukemia, such as weakness and wasting.

Barclay says this seems to be a rational view to adopt, and is certainly very clear and definite as an aid in prognosis as well as in diagnosis.

The latest classification noted in the literature is by Schaffer and Jacobsen and is based on Thursfield's, an elaboration:

(1) Mikulicz's Disease:
- (a) Familial
- (b) Mikulicz's disease proper

(2) Mikulicz's Syndrome:
- (a) Leukemia
- (b) Tuberculosis
- (c) Syphilis (?)
- (d) Lymphosarcoma
- (e) Toxic: (Lead, iodides, etc.)
- (f) Gout
- (g) Febris uveoparotidea subchronica

Howard believed that the disease proper progressed through a pseudo-leukemic stage to lukemia, and claimed "a whole series of cases exist forming links in the chain from isolated lymphomata of the lacrimal or salivary glands to complete involvement of these glands with simultaneous disease of the lymphatic and hematopoietic apparatus." Schaffer and Jacobsen do not agree with this, but state "that though every case of Mikulicz's syndrome is possibly one of lukemia, Mikulicz's disease proper is not potential leukemia."

In regard to the Mikulicz's syndrome in sarcoma, there are many cases on record in which one or all of the salivary and lymphatic glands were involved.

In "febris uveoparotidea subchronica" iridocyclitis is the main symptom in connection with symmetrical enlargement of some of the salivary glands and often with peripheral nerve paralysis.

In 1888 Mikulicz reported a case of bilateral, chronic, painless enlargement of the lacrimal glands with an associated enlargement of the salivary glands in a man 42 years of age. He later reported the death of the patient in August of the same year after a nine day illness. Cause of death was given as perityphlitis. During his last illness the parotids rapidly decreased in size until, at the time of his death, they were almost normal.

CASE REPORT

S. W. M., a negro boy, aged seventeen years, first came to our office in July, 1931. His complaint was that his eyes would swell up and that sometimes they would hurt. For the past month or so they had remained swollen and he stated that his vision was not any too good. He said that the trouble had started many months previous, but could give no definite statement as to the exact length of time.

Personal and Family History: Patient was a healthy, well-developed boy without history of previous disease, and the family history was negative.

Physical Examination: General physical examination was negative. Enlargement of both lacrimal glands was noted. They could be easily palpated and felt firm, hard and fixed to the orbital wall. The lower edges extended half way down the outer rims of the orbits and extended forward six mm. beyond the bony margins. The eye-lids could not be elevated fully on account of the tumefactions and had a drooped appearance as in

ptosis. There was no inflammatory reaction in the eyes. The right lacrimal was larger than the left. D.V.R. 20/50; D.V.L. 20/20.

The patient was studied, blood was taken for a Wasserman and plans made for operation. After this preliminary study the patient remained away until February, 1932. The condition had become worse. There was chemosis of the lower fornices, the right one rolled out and there was an ulcer at the lower edge of the right cornea due to imperfect closure of the lids, all of which was due to the mechanical effects of pressure.

There was bilateral exophthalmos as the result of encroachment of the tumor masses above and behind the globes. Both glands were bony hard and fixed to the orbital walls. At this time it was noted that both parotid glands were hard and very much enlarged, especially the right one.

In addition to the exophthalmos there was practically complete fixation of the globes in the orbits. Aside from the corneal ulcer near the lower border of the right cornea, the other structures of the eyes had remained clear and the fundi were normal.

The Wasserman report was negative.

The submaxillary and sublingual glands were not enlarged and there was no indication of involvement of other glandular structures, that is, other than the lacrymals and parotids.

Blood Examination:

W. B. C.	6,500
R. B. C.	4,460,000
Haeb. 85%	Malaria negative

Differential White Count:

Polys.	57%
Small L.	36%
Large L.	4%
Eosin	3%

Urinalysis negative.

The patient and the family were averse to operative interference and the patient was referred to Dr. W. T. Rainey for deep X-ray therapy with the hope that this form of treatment might influence the condition. Dr. Rainey gave four treatments, one every other day, and asked for a period of thirty days to look for evidence of results. The latter part of April, 1932, no indication of benefit by X-ray treatment being apparent, the right lacrimal gland was removed surgically. The tumor mass was about the size of a butter-nut of average size, and somewhat the consistency of cartilage. A few weeks later the left lacrimal was removed in like manner.

The first pathological specimen was sent to Dr. C. A. Shore for study. His report did not go into a detailed analysis of the specimen, but simply stated that the tissue showed signs of chronic inflammation, and that there was no evidence of neoplasm.

Following removal of the lacrimal glands the parotid glands receded to normal and have remained so.

CONCLUSION

This case seems to be one that classifies under the head of Mikulicz's disease, rather than under the head of Mikulicz's syndrome. We have not been able to demonstrate the presence of any other co-existing infection, and inasmuch as two years have elapsed since treatment, without recurrence, we presume that recovery is complete.

CHAIRMAN PEERY: Well, gentlemen, the next thing I want to do is to thank Dr. Coleman for making this trip down here to talk to us. I for one—and I think you will all join me in this—enjoyed his talk and I think I have profited by it, Dr. Coleman, and it makes me kind of anxious to be able to see you do some more work.

Is there any unfinished business to come before this Section? Are there any reports of committees?

Well, then, I suppose it is in order to elect a chairman for the coming year.

. . . The name of Dr. B. W. Fassett, of Durham, was placed in nomination, and he was elected. . .

. . . Dr. R. S. Taylor, Greensboro, was elected secretary. . .

. . . No further business appearing the section adjourned at five-thirty o'clock. . .

PUBLIC HEALTH AND EDUCATION

WEDNESDAY AFTERNOON SESSION

May 2, 1934

The Section on Public Health and Education of the Medical Society of the State of North Carolina convened at two-thirty p.m., in the Men's Card Room, The Carolina, Pinehurst, Dr. Robert E. Rhyne presiding as Chairman.

Chairman Rhyne: The Section will now come to order.

I believe it will be necessary to appoint a committee to pass on papers in this section, and I would like to appoint on that committee, Dr. R. L. Carlton, Dr. R. E. Broadway, and Dr. R. M. Buie.

The first paper we have on the program is from Dr. Bulla of Raleigh. His subject is, "Whom Should Receive Preventive Medicine from the Health Department?" Dr. Bulla! (Applause)

WHO SHOULD RECEIVE PREVENTIVE MEDICINE FROM THE HEALTH DEPARTMENT?

By Dr. A. C. Bulla, Raleigh

From the title of this paper, I presume the purpose of it is to discuss preventive medicine as practiced by local health departments and the relationship between them and the practicing physicians, particularly in the control of communicable diseases by the use of vaccines and sera. The State Board of Health, in its approved plan of General Functions of Public Health Practices and Services to be Rendered by Local Full Time Health Departments, puts the control of communicable diseases first among many important items of public health work. It recognizes the seriousness of these diseases, their complications and sequelae which frequently follow in their wake.

Practical application of definite scientific knowledge, already attained, still lags far behind, which would enable physicians, public health authorities, and the public, working intelligently together, to make much greater progress in the control and eradication of communicable diseases than they have been able to do in the past. The profession, as a whole, does not take the time, or consider them important enough, to use all of the known approved scientific measures at its command. There is more expected of a physician today, if called to see a case and it happens to be diphtheria, than to make a diagnosis, give the patient antitoxin, and report it. He should determine the immunity or susceptibility of each member of the family, make or cause to be made, laboratory tests and take the necessary steps to protect those found to be susceptible. In the face of all this, more has been accomplished in the past fifty years than has occurred in the previous five thousand.

We do not have to go back many hundred years to find surgeons operating on people with stone-tools and flint-knives to let out tormenting spirits and to please the gods. For ages the main or only defense the people had against disease was prayer, magic, sacrifices, and taboos. We know from history, up to the time of Pasteur's work with cholera, anthrax, and rabies, the traditional type of medical practice was based on a possible cure. The profession, with few exceptions, had been taught to diagnose, to cure the sick, to treat the injured, and to apply the laws of ethics. This is nothing more than might have been expected of a group trained in the art of healing the sick and alleviating pain. There was no thought given to prevention, because there was no knowledge of how to prevent.

The remarkable discoveries of Pasteur, Lister, and Koch very definitely mark a period of transition between unscientific and scientific medicine. They gave medicine and surgery a new birth and a new hope, but the people then, as now, were skeptical, and public tests and demonstrations were made to prove their value. Since their day and time, slow but sure, the trend has been toward prevention; and no intelligent person could or would, after even the most casual inspection of statistical records, question the merits and benefits that have come to suffering humanity.

Whether we like it or not, it must be admitted that we are at the crossroads of a new era in the application and practice of scientific preventive measures in this state. The profession cannot treat lightly or indifferently its full responsibility. It must practice both curative and preventive medicine. The family physician must be encouraged to play a greater part in the administration of vaccines and sera to children and infants in the home, and consider it a part of his routine practice and at the same time an acknowledged procedure on the part of the family.

The profession, as a whole, is just as much interested in extending medical knowledge and medical service to the public as is the best and most active health officer. The public, at times, has charged the profession with being a follower and not a leader; that it only seconds the demands for higher standards of community health, instead of creating it. And it sometimes happens that if the profession is active in promoting and organizing community health programs to improve insanitary conditions, to prevent disease, to make living conditions better, to make life happier and the citizens more useful, a clamor will be raised up by some, charging the physicians with being commercial, seeking to benefit themselves by increasing their practice. How inconsistent! What a lack of confidence! And yet these acrimonious charges may not be limited to the public entirely, but may be heard in the ranks of the medical profession itself. Such charges are always ill founded, whether they come from the public or from a few disgruntled physicians. The profession is not second in demanding higher standards of living; it is not indifferent about community health programs. It is a leader now, and always has been; it stands for and fights for the noblest and best in every community.

The State Board of Health, since its organization in 1877 with a meagre appropriation of one hundred dollars, has gradually and successfully extended its services to the profession and the public. Since 1912 its activities have been phenomenal, compared with previous years. The number of local health departments has increased from one to thirty-four, serving more than one-half of the state's population, and appropriations have increased from a few hundred dollars to hundreds of thousands.

Public health activities have included wholesale campaigns for the purpose of examining school children to find damaging physical defects, to vaccinate and immunize infants, children, and adults against diphtheria, smallpox, and typhoid fever. Prenatal, postnatal, baby, and tonsil-adenoid clinics have been included. Sanitation has spread from large cities to small towns and rural communities. The four essentials of every home—safe water, some approved type of sewage disposal, screens to keep out flies and other insects, and a wholesome safe milk supply—have been preached early and late to all the people.

All these activities have had a tremendous effect upon the incidence of communicable diseases, and the results have been reflected in the case and death rates, and in some instances, perhaps, the physician's income. But all of these public health activities carried on by the state and the local health departments cannot be held accountable, and are not the primary cause of the distress and protest that come from the medical profession. The economic factors that distress the profession manifestly affect others and are deeper, more apparent, and more devastating than the essentials of live and living. Times have changed and the average physician does not find himself so satisfactorily situated as he was a few years ago. The change has been so sudden, so marked, and in many respects so radical, as to cause the profession to open its eyes, to view the past, to ponder on the present, and to look to the future.

The chief differences between the physician practicing curative medicine and the health officer practicing preventive medicine are these: the physician deals with the individual; the health officer with groups of individuals. The physician is interested in the health and well-being of his patient as an individual; the health officer thinks of his work in terms of cases per hundred thousand, in curves of birth and death rates. The physician is dependent upon his patients for a living—how well he cares for them and pleases them determines to a considerable extent his success and his income; the health officer is independent of his group and, unfortunately in some instances, perhaps too many, he is dependent upon his ability as a diplomat and politician for his success. If he happens to possess these assets and at the same time happens to be a good health officer, fortunate indeed is he. It sometimes happens that good health officers find themselves in embarrassing positions because they are lacking in diplomacy and not quite good enough politicians to suit the officials. The physician believes in Pope's rule, "Be not the first by whom the new is tried, nor yet the last to lay the old aside." The health officer should

be progressive, advocating new discoveries and new methods and keeping ever before the public some educational public health program.

Pediatricians cannot practice their specialty without practicing preventive medicine, and the general practitioner must, whether he likes it or not, accept the idea of prevention as a part of his duty to those he has so faithfully and loyally served in the past.

The greatest single mistake being made by health workers, by pediatricians, and by general practitioners is their inability to secure early immunizations and early discovery of physical defects in children from one to five years of age. In this field of practice, call it what you may, health work, pediatrics, general practice, or what not, the surface has scarcely been scratched.

If there is a certain element in the medical profession which is inclined to feel that preventive medicine as practiced by local health departments is overlapping into the field of medical practice, and has a tendency to withhold its support and coöperation, based on this belief, it might be well for it to consider the encroachment of other activities in various directions which take the form of public clinics, medical hospital service, student health service, state and county institutions, physicians employed in industries and large corporations and many other various kinds of medical practice. This does not include self-treatment by the public, activities by quacks and other cults, and a large part of the population which finds it difficult, if not impossible, to meet the cost of medical care.

In view of these facts, it is pertinent to ask these questions. Are the health departments, state and local, as operated now, responsible for the financial losses the profession has sustained in recent years? Hardly. On the other hand if time would permit, it could be shown that they have enlarged the field and increased medical practice.

Is the medical profession, at the present time, overcrowded? No, but the tendency is in that direction and unless something is done to balance the supply and demand, there will be in the near future an oversupply, and the results will be disastrous to the profession. Already young medical men are congregating in large centers of population, where they can find facilities to aid them in practicing medicine in keeping with their training, and are becoming overcrowded, while rural sections are in need of medical service. At the present time, if reports are reliable, I doubt very seriously if the public is financially able to pay for adequate medical care.

And last, but not least, can the medical profession reclaim the neglected field of medical practice? My answer is "Yes," if:

1. County medical societies will organize for purposes other than periodic meetings for the presentation and discussion of scientific papers.

2. The profession's ethics, exaggerated in many instances, makes many physicians shrink from anything like a business organization to extend their practice, to increase their income and better serve the public by establishing clinics on business basis with fees regulated on sliding scale,

according to the income of that portion of the population which they are to serve.

3. The profession should begin to think in terms of medical care for all classes and become the guiding force in working out plans and procedures to accomplish it. There is no doubt but what the public is seeking advice and guidance as to how to avoid quackery and fraud, and how to find competent and legitimate medical treatment. Many families in all walks of life, shop around from physician to physician and fall into the hands of charlatans and resort to expensive and ineffective advertised cures and seriously waste the family's resources, as well as the margin of opportunity for timely treatment and cure.

4. The profession should, through a health committee, working with the county board of health, be the guiding force in any public health program. The program should be approved by both the county board of health and the county medical society.

5. The profession must practice preventive medicine just as earnestly and seriously as it practices curative medicine. If it accepts the best scientific knowledge available, and it will, there is no other course for it to pursue.

6. Medical colleges, public health schools and training schools for nurses, will in the future bring about a better understanding between general practitioners and public health workers.

It is not exaggerating to say that there is a growing demand for protection against preventable communicable diseases! That the public is becoming better and better educated as to the value of public health activities and the possibilities that lie in the new discoveries of scientific medicine and the ease with which group application is possible at a minimum cost. Local health departments are operated in the interest of the public and if they do their duty they cannot neglect to urge and seek protection for all the people. And because of this growing demand by the public for better protection against preventable diseases and better living conditions, the statement is frequently heard that state medicine is rapidly coming. If state medicine ever comes it will be because the profession has failed to give adequate attention to the more pressing problems that face the public in social values and adequate statesmanship in meeting social needs. One thing is certain, if we were to destroy the state and local health departments today, tomorrow something would rise up to take their places. What name it would assume, how controlled and operated I do not know, but rise up it would.

The solution lies with the medical profession. It must lead and not pull back; it must blaze the way, not block it; it must build the program, not tear it down; it must demonstrate its ability to lead and to persuade the public to follow. In this will be found the answer to the title of this paper.

DISCUSSION

CHAIRMAN RHYNE: It would be appropriate at this time to have any views other than what have been brought forth by the paper presented.

If there is anyone who wishes to discuss Dr. Bulla's paper, we will hear from him now.

DR. R. M. BUIE (Greensboro): The question, "Who Should Receive Preventive Treatments from Health Departments," is one in which we are all intensely interested at the present time, and one which we who are actively engaged in public health work must face.

As long as we have deaths from communicable diseases in our various communities, it is an interesting question for us, so long as, for instance, children are choking to death with croup, we, as health officers, must assume the responsibility for allowing those deaths. We cannot say that that responsibility is the responsibility of the medical profession or anybody else, it rests on the health officer to see that those diseases are eradicated.

So long as we allow people with open cases of tuberculosis to spread the infection in our communities, we cannot say that this is the responsibility for the medical profession to practice this preventive medicine.

We must see that our organizations are built up to such an extent that we can control those, because that is the responsibility of the Health Department. In other words, the prevention of disease, as I understand it, is primarily the responsibility of the Health Department.

Now if we attempted today to shift all of our work, as Dr. Bulla says, to do away with all of our Health Departments, we would not have one-tenth as much preventive inoculation given by physicians as we have at the present time.

We know what it is in order to get anyone to go to a physician, we must educate and re-educate and keep on educating as to the necessity for that.

For instance, it has taken us a long time to reach the point where when people have a pain down in the right side, they immediately call a physician. We have been working on that for years and years and yet we have one death after another from appendicitis in our respective communities.

With regard to the inoculation of these various diseases, we went along from the time of Lister until just recently in this community and we continued to have outbreaks of smallpox, for years and years in North Carolina, until our Health Departments became organized and we have been actively pushing our inoculations, and in Greensboro we have not had a case of smallpox this last year.

We have got to do much more intensive work on these diseases than we have ever done. For instance, last year in Greensboro we had a little outbreak of diphtheria. This occurred in two sections of the city and when we began to check up on them we found quite a large per cent of the

children in those two sections around the schools had not been inoculated, but we had a large percentage of our people who had been protected and the physicians have been especially active in pushing inoculations.

The Health Department has been open and we have been working together on a campaign to entirely eradicate diphtheria, but we had some forty or fifty-five cases of diphtheria, but most of them centered in the areas around these two schools, in the city last year.

You must have in your respective areas, surveys, and you have got to work out these various points, and you as health officers and those interested in preventive medicine have got to do intensive work if you are to completely eradicate diphtheria.

Typhoid fever—we know what preventive inoculation did; Dr. Bulla did not go into these respective things and say who should do which and so on when it comes down to particular points, but typhoid fever, for instance—we know that depending upon preventive inoculations is not the method to control it.

We have got to depend on sanitary conditions in our respective communities, and unless we get out and push the building of privies and sanitation of our water and milk supplies in these particular sections, we are going to continue to have typhoid time after time, we know, and we can't get enough of our people inoculated to entirely control it.

We must control it by sanitation and it is distinctly the work of the Health Department to do that, and we must see that as far as we can in our various respective communities, all over the state that proper privies are built, and that we have a proper milk supply, and water supply; those are the three things that we must depend upon.

The only place where we have any distinct trouble with physicians in our work in this state so far as I see it, any place where they have objections, has been vaccination for smallpox which is made by law compulsory and we couldn't escape the responsibility if we wanted to—and perhaps diphtheria.

And that is being gradually done, we have practically wiped that out, so that we have our distinct spheres, one on one side and the other on the other. We can work together right straight along and we can wipe out diphtheria once we get rid of that reservoir of infection.

Where we have neglected our job in diphtheria is the case of those children that have passed one year of age. Every physician should inoculate children within one year of age. By that time the physician ought not to say a word if the Health Department gets that child and gets it inoculated before it chokes to death.

Our physicians, there in Greensboro, say to me, "Why don't you clean up these diphtheria cases?" I have had physicians say to me, "Why don't you clean them up; why should I have to go out there and intubate a child who is choking to death and then perhaps cut his throat and do all

of that, and then have the child die on me when we should have the disease controlled?"

When I have a physician tell me that, I feel that it is my responsibility to control the disease, and I believe that as we go along more and more, and as we get out this reservoir of neglected material in our various respective communities and get down to the point where we should really handle our problems, or our various problems in the different communities, then we will eliminate those real reasons that we have for differences of opinion between the physicians and the Health Departments, and they all can go right along together just as we have all been saying we should do.

CHAIRMAN RHYNE: Is there any further discussion?

DR. ROY HEGE (Winston-Salem): Since Dr. Bulla has suggested in his paper that we have a Health Committee from the Medical Society to study our health needs with our Board of Health, I would like to ask the question, "If there is such a committee in any health department, will some person representing that district, so to speak, tell us how it works along."

We feel, or I feel, that the Medical Society is represented in our Board of Health, two members of our Board of Health being members of the Medical Society, and I wondered if anyone had gone further and had appointed a Health Committee that worked in connection with this Board.

DR. JOHN SYMINGTON (Carthage): Regarding diphtheria we all need education, and a great many in the medical profession besides us.

Now I don't like to give names, but I was called into one family after there had been four or five months of sickness there, and I asked who the doctor was and they told me it was Doctor So-and-So, a friend of mine, and he is here at this meeting, and I am not going to give his name. He probably would jump on me if I did.

Well there had been sickness in that family among the children and whether he had diagnosed the first case as a sore throat or diphtheria or what, maybe septic sore throat or tonsillitis, I don't know, but anyway the child had a sore throat, and he gave a diphtheria antitoxin, a big dose, ten thousand units. He waited and another child developed the disease, he gave that one a diphtheria antitoxin and then another and another.

And then the mother came down with it and it was then I was called in and here she was suffering from diphtheria.

Now I said, "Why weren't you all vaccinated for diphtheria, and none of this would have happened?" Of course, we have exceptions to this rule.

They said the doctor thought it wasn't necessary and he waited until they got the disease and then gave the antitoxin.

That is where I see education is necessary. These children lost half of their school session and all failed in their grades, that is what happened to that one family, besides the suffering; the mother said she never suffered so much in all of her life, and she had brought children into the world, as she did with that diphtheria attack.

Fortunately all lived, but that doctor seemed to think that that was the way to prevent diphtheria, to wait until they got it and then give the antitoxin.

Now Doctor Hege brought up a point about, if there is any committee or any association helping the Health Department or making suggestions to the Board of Health, he would like to know about it.

There is an association in my county, and that is the Health and Welfare Society. Mrs. Keating of Pinehurst is the able president, and she has collected money and she has given a great deal of her own substance to help public health work in this county. From the very inception of it, and that was six years ago, she had a good deal to do with the establishment of public health in the beginning of it, also Mrs. Leonard Tufts, Mrs. Cheatham, and others.

There is another committee being formed within the last month and that is the Tuberculosis Prevention Committee. Now this is a sort of branch of the Health and Welfare and Mrs. Cheatham, the wife of one of the ministers, is chairman. We are having a meeting about once a month for the prevention of tuberculosis.

Now we are up against a sort of snag because we do not know what to do with the incurables who are refused admittance into the State Sanatorium. In a number of counties they have a county sanatorium and I suppose that is the right thing, but in this county it has been considered too expensive, and the Commission has not gone into it because of the expense. They closed it over a year ago.

It is a great problem, what we are to do with those incurables that are constantly arriving. Now just the other day, we sent them to the State Sanatorium, and they said they only wanted those that they can help.

Now, of course, that starts the infection all around, and it seems to me there ought to be an appropriation of some kind to take care of the incurables as well as state places to care for the curables. One is just as important as another, to me, in the spread of tuberculosis.

Dr. Roy Norton (Rocky Mount): I think that all of us in health work will agree that at present, the work being carried out by health departments is all-essential, and that practically no major changes can be made at present. I think all health officers as well as all private practicing physicians would agree to the fact that in so far as possible, the private practice of medicine ought to be carried on by private practitioners and not by health departments.

One of the things that we might take advantage of now, and that is why I got up to make this suggestion, that I am sure all of us are taking advantage of as far as possible, is that close coöperation between health officials and welfare departments at this time, when Federal money is being used, being in a good many instances used to take care of the expenses of private physicians, and in that way shift some of this work that will necessarily be dumped on the Health Department.

If possible shift it back to the private practitioner where it belongs and in that way the public can be educated to the responsibilities of a community taking care of its indigents that should be taken care of through the regular practitioners.

As I say, this is an ideal time for that educational work and the practice of it to be carried out, and all of us ought to take advantage of it.

CHAIRMAN RHYNE: Is there any further discussion? If there is no further discussion, I will ask Dr. Bulla what he has to say.

DR. BULLA: Mr. Chairman, I know that you are all disappointed in my paper, no more so than I, because when you go to write a paper on treatment by the Health Department, you are going up against a problem. You can't classify people of North Carolina into different classes, A, B, and C, and say this class will receive treatment at the hands of the Health Department, or B shall receive treatment, and C shall receive treatment at the hands of the medical profession. That just cannot be done.

We have got to work out a program in relation with the county medical society, I think, if we ever hope to get anywhere with a program that will not cause friction, and embarrassment in operating a Health Department.

Now there is one thing certain. We cannot, as public health officials, work when there is friction with the medical men in the county.

We may work a while, and we may get along pretty well for some time, and we certainly are going to have a majority of the public with us, but what if we have? We can't do efficient public health work unless we have the medical profession with us, and that is my plea in this paper—to work out some plan and get together and have a program that they will support, that they will approve and support, and then we are going to do away with the friction that we so frequently see here and there, not as a whole in the profession but here and there.

Some doctors don't believe that we are doing the things we ought to do, that we are overlapping into the field of medical practice.

Particularly is that true with vaccinations. Anybody and everybody they say can go and get it, and they can. They are entitled to it. If the physicians won't give it, they can go to the Health Department and get it because they are entitled to it.

But what we want to do is encourage, as far as possible, the medical profession to extend their practice into the field of preventive medicine which up to the present time they haven't done very much of, and seemingly are unwilling to do.

But they certainly have got to do that because we are going in that direction, and the sooner we can get them into the field, taking a part, pushing the program, the better off we are all going to be.

As to the committee, it has got to be thought about. We have one in our county. I asked for it and it was appointed and I am getting their viewpoint, and I presume they are getting mine.

The thing that the committee will suggest the first time you get them together is, "Can't some of this be done by the profession? They are

suffering financially, they are collecting nothing, and everybody is apparently willing to go to the Health Department and get most anything they want. It is a wide open place. Can't some of that be diverted into the field of medical practice?"

It can be but they have got to take their part in diverting it. It is not up to the Health Department entirely to divert these paients, able to pay, into the field of private practice. It is up to the medical profession to assume a greater part than they have ever assumed in the past and bring the public into their confidence, and into their practice, and that is what my committee is trying to do.

If we are doing anything that is objectionable to them they want to have it gotten rid of. When they wanted to economize or did a few years ago—because they thought too much money was being spent everywhere, they wanted a few things cut out. You can reduce but when you go to cutting out, your essentials are crippled.

CHAIRMAN RHYNE: We wish to thank Dr. Bulla for his excellent paper, and these gentlemen for their discussions. (Applause)

If the medical profession does not perform this duty of prevention by inoculation and vaccination, it seems that it will be forced upon the health officials.

CHAIRMAN RHYNE: The next paper we have is that of Dr. J. Roy Hege, Winston-Salem, entitled "Health Education of the Public."

HEALTH EDUCATION OF THE PUBLIC

By DR. J. ROY HEGE, Winston-Salem

Caring for the health of the people in any community is a very complex matter today, as compared with the simple measures which prevailed a century ago.

In the early days, the physician confined his activities to the individual patient. A familiar scene was that of the doctor on horseback with his saddle bag filled with medicine, riding to the homes of the sick.

During the past century, there has come the need to supervise certain community matters which affect the health of the inhabitants. The water supply must be made safe, the milk supply protected, the disposal of waste and sewage provided for, and in so far as possible, the spread of contagious diseases prevented.

The public is now beginning to recognize in the public health officer an organizer who primarily directs and supervises public health activities in addition to the enforcing of public health laws.

Anyone familiar with the history and development of public health must concede the fact that education of the public in health matters is becoming the paramount function of health departments. While it is true that public appreciation of the favorable influence of education on health has been extraordinarily slow, nevertheless, health education has made distinct progress. People are much better informed about the rules of health now

than they were in the past and are now beginning to understand the purpose of health departments.

The broadening field of endeavor of public health work has made it increasingly apparent, that an intelligent public appreciates the value of health education. Most students of public health admit that the progress which has been made in public health in the last half century is due solely to the fact that people have been taught how to live healthfully. Infant mortality which was appalling in almost every city 25 years ago has been markedly reduced, because mothers have been taught how to care for themselves and their babies.

Public health work has become a vast coöperative enterprise in which official and unofficial agencies join forces and in which physicians, dentists, nurses, school teachers, social workers, and others, work with and for the community and individual health. The health program can be completely successful only when parents, school children and all citizens are sympathetic with what is being done and do their part for their personal health and the commonwealth.

The health officer should plan educational program. Experience has shown that real progress in community health education is accomplished only by organized, systematic and persistent effort on the part of the health officer or his assistants to inspire the public's confidence in himself or his message.

In our best health departments health education is strongly emphasized. It seems logical to state that health officers who fail to keep their communities fully informed about diseases and how to avoid them are not the most efficient health officers. With this view in mind the public should be fully advised of the responsibilities of the health department and of its own obligations under the laws of federal, state, and local governments.

Because it is necessary to care for the sick poor, dispensaries are operated for those who can go to them, while hospitals are maintained for those who need bed-care. In recent years, attention has been directed more and more to means for preventing disease and for promoting health.

The general public may well ask the question, "Just where does the private practicing physician fit into the modern conception of disease care and prevention and health promotion?"

The home, of course, is the basic unit of any community, and the private physician, now as in times past, cares for the sick in their homes. In addition, he cares for the sick poor in the dispensaries and in wards of the hospitals. In this latter case, he contributes his time and service. Through the Health Department, the physicians are kept informed as to the community health needs and advised regarding the various measures of health conservation to which they are expected to contribute.

Health departments must work "hand in hand" with the private physician because the first knowledge of the presence of disease usually comes from the physician and the latter, therefore, logically becomes the "key man" in the control and prevention of many diseases.

It will be wise for public health officials to take the medical profession into their confidence and to abandon the traditional police power attitude in dealing with the medical profession and to remember that much more can be accomplished by good willed coöperation based upon understanding. We all know that certain elements of the medical profession view certain public health activities with suspicion. Undoubtedly many of the incompatibilities that have arisen between the public health and private practice resulted from the inevitable differences in viewpoint between the health officer and the practicing physician. The former visualizes his community on a chart and plans his work in terms of morbidity and mortality rate per 100,000, curves of birth rates, death rates, disease incidence rates, and therefore unintentionally fails, at time, to appreciate and to respect the private physicians' viewpoint. The latter deals with the individual and is interested in the health and well-being of his patient as an individual and not infrequently overlooks the fact that the practice of medicine has long ceased to be a matter affecting only the doctor and his patient; he fails to realize that, at times, the practice of medicine justly becomes the concern of the state, which must take a hand when the public welfare is at stake.

That a proper adjustment of these viewpoints is necessary before any successful program for health education can be carried out is self evident.

Health Departments in earlier days concerned themselves largely with matters of sanitation such as sewage disposal and safeguarding of water and milk supply. In these matters, physicians had only an indirect interest.

But modern public health efforts are concentrated largely on personal hygiene, by which is meant those matters which directly affect the individual. The hygienic case of the infant and child, the prevention of infectious diseases, the examination of people who handle our food are illustrations.

When the Health Department directs its intensive efforts to have every child immunized against diphtheria, especially those of the pre-school age, the Health Department will appreciate the part the private practicing physicians play in making such an effort successful, and urged their wholehearted participation.

Other Health Department activities, such as medical inspections of school children, the physicians coöperation is vital to the successful carrying out of the corrective measures advised by the school physician. In preventing the spread of communicable disease, the Health Department officials and the private practicing physician work in close harmony. On request by the attending physician, consultation with the health officer is held. In making available laboratory facilities the Health Departments also render a most valuable service.

A great factor in health education is the nurse. She is a constructive force for the betterment of the community health. The influence of the public health nurse is far-reaching because of her intimate contact with the home. The success with which the nurse meets in selling her personality and therefore her message to the family depends upon her method of

approach, tact, judgment and training. The nurse in public health has become essential to teach health in homes, at clinics, in schools, and in industrial establishments.

We need another important health organization, the Public Health Nursing Association to provide nursing service to the needy sick in their homes. Here we will look to the county medical society for guidance, especially as to the proper steps to take in attending the sick until the doctor arrives on the case.

The teaching of public health education should begin in the schoolroom. There is an increasing realization of the fact that the school teacher is a tremendous influence in encouraging good health habits among school children. School teachers should familiarize themselves with public health problems so that they could teach health prevention more intelligently.

Whether it is through the medium of the health officer, private physician, public health nurse, social worker, or school teacher, public health education is becoming more and more a problem in salesmanship. There are many ways of selling health to the public. Popular health instruction through the medium of the printed page has done much to modernize the laymen's conception of disease prevention. The daily newspaper, health department bulletins, the radio, the exhibits, and the lecture play important parts in health education programs. Special pamphlets on personal hygiene and sanitation, communicable diseases, child welfare in general and milk sanitation will prove helpful. Brief items of interest which have real news value can reach a much greater number of people through the newspaper than can be reached in any other way.

In the preparation and use of publicity material it should be borne in mind that the facts selected for use in a given program should be true, important, comprehensible and practical. Caution is necessary in advocating new methods. Speakers should be the best authorities on the various phases of health work and should have faith in the message they deliver. In general our material should be simple and concrete and our programs so planned that one uncomplicated lesson at a time should be given before the public mind is confused with some different and perhaps conflicting issue. The facts we teach should be comprehensible to the uneducated masses and not merely to the statisticians or physicians. Health exhibits have been used to good advantage by many cities mainly in the form of graphic charts. Health education, whether through the medium of health officer, private physician, nurse, social worker, teacher, newspaper, annual report, exhibit, movie, radio, or lecture is the keystone on which all policies of the modern health department should be built and the key to health and happiness.

DUTY OF PHYSICIAN TO KEEP PEOPLE WELL, SAYS CARLTON

"Keep physically fit; get an o.k. from your doctor," Dr. R. L. Carlton, city health officer, stated last night in his weekly health talk. "Whether one is a bricklayer or the 'big boss' it is economical to be healthy.

"Man has the intelligence which makes it possible to realize when things go grossly wrong and to take steps toward correction, so therefore, he has no excuse for neglecting a physical examination at the hands of a good physician. Such examination may reveal remedial defects or early stages of a disease and if nothing is found there is afforded a feeling of confidence in one's state of health which means freedom from worry.

"There are too many people who wait to go to their physician until they are too sick to keep up any longer," he stated. "This is foolish, but we dread going, so we just naturally procrastinate.

"One need not be everlastingly thinking about one's health. If people always have their health on their minds they are to be pitied. Just that is an argument in favor of the 'health' examination. Get your doctor's o.k. on your condition, then you know where you are and need not worry.

"We would be better off if we could get it firmly into our heads that physicians are the guardians of our health and out of our heads that their only function is to cure us when we are sick.

"It would be fine if physicians generally could send their patients notices at stated, regular intervals, telling them it is time for a check-up. Some of the babies' specialists are doing just that—reminding the mothers it is time for baby to be immunized against diphtheria or to be vaccinated or to have a general looking over to find if baby is developing as he should. This periodic examination is valuable for adults as well as for babies and children.

"The idea of modern medicine is to keep people well. But the idea will only work when doctor and patient get together before sickness comes. That is, if we, you and I, make a habit of going to our physician—say once a year, for an overhauling."

DISCUSSION

Chairman Rhyne: Dr. Hege's paper is now open for discussion.

Dr. R. L. Carlton (Winston-Salem): Mr. Chairman, I think there might well be exhibited as a piece of health education the magazine section of the paper issued in our city May 1, in which he had considerable material to supply. His picture appears in that paper along with some of the activities of his department about which he need not be ashamed.

I just want to add, Mr. Chairman, regarding newspaper publicity, to my mind, after seventeen years of experience in this work, it is one of the most important things we have. We have the most public health-minded editor in North Carolina in our city, and I happen to know that he has issued orders to the members of his staff that when anything comes to his office, that that material is to be published, not to be brought to his desk and be censored or changed, but published as it reaches that office and they have done that consistently for a number of years.

It is a very happy situation and I think effective to a certain extent.

Regarding salesmanship, I said two nights ago in a meeting here that I am not so sure that we health officers are good salesmen. We think some-

times we are, and we get a fair appropriation and we put on a fairly good program, and things are controlled in a public health way pretty well, but then there isn't anything happening and the Appropriating Board says they are spending too much money, because they say we are not doing anything, and they proceed to cut off, for instance, the dental clinic, which has been going along with a full time dentist for three or four years.

Then the dental survey comes along and one of the enthusiastic dentists discovers a number of cases in one of the schools, and he proceeds to hand out some publicity concerning it and our Appropriating Board gets alarmed and gets busy and appropriates enough money to put our dentist back on the job for two months to clean up the case which was no more prevalent than it was six months before, but it seems the dentist was a better salesman than we were.

Altogether it was a good paper and we thank Dr. Hege.

CHAIRMAN RHYNE: Is there any further discussion?

DR. HAMILTON (Raleigh): I think Dr. Hege has produced a very valuable paper. There is just one little inference that I think Dr. Carlton brought in, that I believe indicated that they have good publicity in Winston-Salem, due to the fact that they have a good newspaper editor. I would like to voice a little opposition, I think, they have a good editor because they have two health officers that taught that editor public health. (Applause)

DR. SYMINGTON: Regarding the publication of articles in the local newspapers, I would like to make a request that Dr. Cooper or Dr. Hamilton or somebody from headquarters supply us with a skeleton of articles for weekly publication in the newspaper, and I think, indeed, it would be better if they supplied us with the articles, and if they can't supply us with the articles or the skeleton of the articles, then supply us with the text, one text a week, something like a Sunday School letter.

Now, when I come to the end of the week, Friday is the day to write an article, and I don't hand it to the stenographer and it goes over to the next week and doesn't reach the paper, because Friday I am tired with the week's work, and Friday evening there is a multitude of work and duties to attend to.

CHAIRMAN RHYNE: Is there any further discussion? If not, I will ask Dr. Hege to close his paper, please.

DR. HEGE: Dr. Carlton has suggested that I pass these bulletins out, that is dealing with the welfare section. Dr. Knox follows me and I just didn't want you rattling the papers while Dr. Knox is talking, so I will place the papers in the back and you will get them as you go out.

Here is a Baby Welfare Section of the paper, and it is just a part of Tuesday morning's paper which is May 1, and it is gotten out in booklet form. It has sixteen pages in it, practically every article in here is written by someone who has signed his name to it, and is an authority in his field.

Here is Dr. Epperson on "Health Declared Richest Capital of a Community." Responsibility of personal health rests squarely upon the shoulders of the individual, but keen interest in the health of the community is also needed, says Dr. Epperson.

Here is Dr. Baier with an American Medical Association report, and here is a photograph of a school, a pre-school clinic, and on further, Dr. McCain on tuberculosis, the importance of early diagnosis and control of tuberculosis in children and adults stressed. Dr. Carlton deserves credit for getting these articles from Dr. Epperson and Dr. Crumbine, and the rest. I suppose he asked them for these articles.

Dr. Carlton: It only took one request to get these articles all special for that publication.

Dr. Hege: That I think is a rather ideal way to do that. Last Sunday another paper in our state published a Sunday baby special. I believe it is ethical to bring this up. Two articles in that paper carry doctors' names. I feel that these papers should be sponsored by a committee from the Medical Society or the Health Department, and not by lay people, because you are getting right into what we have been hearing a lot about here, the laymen taking over the medical work, and medical activities, and that came out in the Sunday papers, and I saw it, and just picked it up to make a comparison. I am not criticizing the Charlotte press or health officers or anything of the kind, it just came to my house Sunday, and since I take the Charlotte paper as well as the Winston paper, it struck me very forcibly.

Dr. Joseph A. Morris (Oxford): Let me share the public's right to education, and please answer these questions.

How often do you get that issue?

Dr. Hege: May the first of each and every year.

Dr. Morris: Is it a regular issue or just on special occasions?

Dr. J. R. Hege: Once a year, May first, for 6 years.

Dr. J. A. Morris: What is the thing that gets the editors to put that in?

Dr. J. R. Hege: The paper features the child and all of the advertisements feature babies.

Chairman Rhyne: I wish to thank Dr. Hege for this excellent paper and also his exhibits, and also these gentlemen for discussing the papers so ably.

We will now have the paper by Dr. G. M. Cooper, "Infancy and Maternity Mortality."

Dr. G. M. Cooper (Raleigh): Mr. Chairman and Gentlemen: Before taking up the formal discussion assigned me I would like to jump into Dr. Hege's discussion just a minute, because that is right up my alley. I couldn't hear his paper, and I couldn't hear the discussion, it may all

have been covered, but I have come to the conclusion that the most important thing in the world in the field of public health with one exception is health education. There is just one thing that is more important than that, and that is a right source of health education.

I think it was Mark Twain or somebody back yonder that remarked that it was a great pity that so many people in the world were studying so hard all of the time learning things that were not so, and I find today that the health records are being written by every crook and faker in the universe, and it is the responsibility of the physicians and health officers, I think, in our respective localities to keep the record true, in other words, to keep away from the public as far as we can, stuff that we know is wrong and is bad practice.

There are said to be fifteen columnists in the United States publishing daily health stuff. Some of it is fine, and some of it is rotten, and it has done a lot of damage.

But in my judgment the popular method of health education is as well illustrated in this special edition of Winston-Salem *Journal* as anything that I know. I have been interested in that publication for the last three or four years, and I want to say that it is a responsibility largely of the health officers and health departments in such localities. I hadn't seen the Charlotte special edition until this moment. I notice that a number of the headlines and articles look very familiar, and it is evidently sound stuff, but the Winston-Salem special edition is particularly sound stuff, and I accredit it first to the editor of the paper being public health conscious, and willing to help as far as he can, and to the hard work of Dr. Carlton and Dr. Hege in getting up the stuff that goes in it.

Last year the advertising manager of the Greensboro newspaper promoted a special edition along about the first of May. We had some excellent material in there. I do not know whether they are going to repeat that again this year or not, but it is a thing that can be done everywhere, and the main idea is to get the stuff before the people correctly, that is to publish scientific facts and in as popular a manner as possible.

Of course it is a hard thing to undo a wrong method. It just takes a generation to do it. I have been lately convinced more than ever of the importance of scientific health education being promulgated by health officers and professionals who know something about the subject, not leaving it to half-baked laymen.

The laymen can do a world of good, providing the laymen are willing to listen to people who know the subject technically, and will be advised by them. I happen to be serving on a special committee of a state organization for the last three or four years, and there is one particular woman on that committee who went to Columbia University some four or five years ago, and took a six weeks special course in public health.

Well, she came back as a full, blossomed-out, mature authority on public health, from the raising of babies up to the treatment of cataracts,

she was an authority on all of it. It has done a lot of damage, and it is going to do a great deal more as she progresses in her campaigns.

Now she is honest in her intentions but the trouble is that she just has a smattering of everything. It is just like everything else, we get a smattering of knowledge and we are likely to lead our following off the road.

Now in connection with the subject that I am requested to discuss, Dr. Rhyne, "The Infancy and Maternity Mortality," I would like to say this: That this meeting this time has been favored by at least two papers of great significance. I refer to the ones submitted on Monday by Dr. Milam, Dr. Hamilton, and Dr. Stimpson, and the other one today coming from this section submitted in the general section by Dr. Forest M. Houser. These papers go into the fundamentals and discuss figures in detail, and I don't believe that you want to hear me repeat those things.

I would like to just point my talk with this view; the whole chorus and refrain of Dr. Hamilton, I believe, as it was expressed the other day, of all of us now in this field, is pre-natal care, to take care of the reduction that can be made in maternal deaths, that is one item, competent medical pre-natal care be extended to every woman all of the time, to every expectant mother. That will cut our maternal death rate more than any other one item.

In other words that is the major problem. The reason for that is that at the present time two-thirds of the women receive no pre-natal care whatever, of the women giving birth to the babies, beyond the fact that half of the number, half of the two-thirds, or one-third, receive only the little pre-natal care which the doctors give when they call on them just before expected labor.

Now if competent medical care can be made available to all expectant mothers all over the state, our maternal death rate will take a sudden and huge drop right off. It can't help but do it.

I think that pre-natal care is an important thing, is a contributing influence anyhow to reducing the infant death rate, but further than that, the post-natal care of the mother and competent obstetrical care in confinement will really reduce markedly the infant death rate.

Now my reason for that conclusion is that about one-half of the infant deaths under a year old take place under thirteen days, just about one-half of them.

Somebody has come along and said—and I have seen illustrations of such misleading information and I have seen it in print several times—that syphilis is the cause of about half the still births.

Well, we have gotten figures from all the sources that we could and those figures indicate that possibly three to five per cent, I believe it is, of still-births may be charged to syphilis. But all of that will be taken care of in a competent pre-natal medical service rendered before birth.

If the women receive proper postnatal care, it will not only lower the maternal deaths, nothing like prenatal care, but it will lower the infant

death rate a great deal, and what is more important than all, I think, it will reduce the morbidity we will say, that is the result of such conditions as lacerations and ill health following the lack of such care, and that will go a long way toward contributing to health and long-life of the woman and her children.

Those are some of the things that I think are just as important as anything can be, and I feel more encouraged today over the progress being made in this field of public health than in any other.

I got out the other day, in thinking of this meeting, some of the old articles that I have written and published in the Health Bulletin and various places back about twelve years ago, and I can't find a single one of them that wouldn't be just as applicable today as when first written, and we have been hammering away on the subject all of the time without apparently getting much public response, and included with the public response is the response from the physicians of the state.

Now if anything is being discussed and discussed intelligently, and with dead earnestness above every other medical and social and public health program in the state than that, I don't know what it is.

So I believe that in the next three or four years, we are going to begin to see the results from our labors of the past several years, and I want to urge on every health officer here, that he use his utmost endeavors to extend the prenatal and postnatal services just as far as possible throughout his county; and of course, the cities are already doing that.

Now Charlotte was a fine example last year. Of 1,726 births reported, there were only two maternal deaths. I have never seen a lower rate anywhere than that. They will probably not make such a good record this year, that was too good to last, but they are on the right track, and in Charlotte they tell me they have just about put the midwives out of business. They have utilized the services of their medical students, in Duke Medical School, that have been made available to them, and that could not have been done everywhere.

In the first place, it costs more than an average county could afford, or thinks it could afford at least, and the machinery for carrying it out would be a little harder to get through.

But it is an illustration of one method that can be put into effect that will save these mothers and save these babies. While we will not go into discussion of plans, because this is not the place for it, in my judgment, I would like to say briefly that the solution will probably be worked out along this line, that is, that a competent nurse or nurses working under the specific direction of the county health officer, or city health officer will contact every expectant mother who is not already under the care of a private physician, in the near future. This will be expanded into prenatal centers something like what is going on, as I understand, in Granville County.

A friend of mine who is a physician over there in one of the smaller towns, told me that the visits of the county nurse have a favorable effect

on the maternal and infant mortality over there in that county. I don't know whether it extends to the whole county or not, Dr. Morris. I understand it does. Every physician in the county is coöperating, and I may add in this connection, that while it is a factory county and tenant county and poor farming county and tobacco county and has the same difficulties that most of the other counties have, they have for two or three years had about the second lowest infant mortality record anywhere in the state, and one of the lowest of any county in the United States.

It just shows that where there is leadership and enough effort put forth under intelligent and competent medical service, extended to these women, through competent and efficient and loyal and industrious public health nurses—right then we are going to have the solution of the high infant and maternal mortality in North Carolina, and we are not going to get it solved before. (Applause)

Chairman Rhyne: Dr. Wright, what about some of that excellent service in your county that has been referred to?

Dr. J. B. Wright (Raleigh): The way this thing was started, it wasn't so much a public health problem when we first started, but we couldn't get the doctors to attend the charity cases unless they were put in the hospital, that was the beginning of the work. We took it up with Doctor Nance who for ten years has been doing this work in the health department without any remuneration, and we did furnish a nurse, and the Welfare Department furnished him with supplies occasionally. But after we got these Duke boys down, Dr. Bradford and Dr. Nance opened up this clinic that gives prenatal service and takes the Wassermann's and sends them back.

Then after they are through with their labor, they come back for their examination, and they are sent back to the clinic for more treatment.

Dr. Reiley has recently been over and asked us to give all of these people one treatment a week for one year, so we have got that going.

Chairman Rhyne: Is there any further discussion?

Dr. J. Roy Hege (Winston-Salem): I want to tell you a little something that we are doing just to help out some of these fellows that are doing the work of county physicians, and Dr. Dodge is an obstetrician in Winston-Salem, who has opened or is carrying on a prenatal clinic at the Baptist Hospital, and we are able to take our charity cases there from the county.

They get splendid prenatal care, and prenatal services through that clinic.

When these women are expected (they are all charity cases that I am talking about) to be confined or about the time they think they would be confined, they are sent to the medical ward in the county home, and the county physicians deliver them there with the assistance of a couple of nurses. These nurses stay in the county home, as they are employed by the county to take care of the folks in the home.

It lightens the work considerably of the county physician to have his obstetrical work all centered in the wards at the county home, or practically all of it. Now and then a woman will not go into the county home, doesn't want the youngster born in the county home, she says, but that idea is gradually being overcome by the excellent services that they get. A woman may go in two or three weeks before she goes into labor and get a good rest, go through her labor fine, and then get a couple of weeks rest after the baby is born.

I think this is a splendid system for health officers to follow, to centralize, get as many of these cases as you can into the county home and let them be delivered in the county home under the supervision of someone who is trained to take care of the mothers and babies, and if there is any pathology in the case, of course, you have an opportunity to treat her in the county home much better than you would in the home.

We have about six cases now in the county home waiting for delivery and that is one reason Dr. Cook didn't come down to this meeting—these six cases are hanging over his head—and it works fine. We think that it makes the work easy for us and the mothers get the best service that they can possibly get.

We keep them out of the hands of the midwives by doing that. The physicians in the county, of course would not want to deliver these women unless they could get some pay, and this FERA fund you know was not available to the physicians in the counties where there was an agency carrying on this work and taking care of the indigent, so the physicians in our county did not come in for any CWA funds at all.

Our local Administrator ruled that Dr. Cook who was with the Health Department, was the proper one to give the services of the county physicians to all of the indigent and that in no case would they be paid for that service.

I think that was a ruling from Raleigh, if I am correct in interpreting it in that way.

CHAIRMAN RHYNE: Are there any other discussions?

DR. JOHN H. HAMILTON (Raleigh): I don't want to make a nuisance of myself but I am sure, however, that everyone here appreciates very much the long continued service which Dr. Cooper has rendered on this very important problem in public health.

I should think that it would be a most excellent program for each public health officer to carry as a part of his program publicity about the report of Dr. Houser's committee, in which he has defended prenatal care or defined the standard, rather, of prenatal care that the general practitioners of North Carolina feel it is possible to attain.

The general practitioner has done a great deal for the cause of public health in this State. At the present moment they feel that they need a little appreciation on the part of the health officers. I believe that in this problem we have our best opportunity of repaying a debt to the

general practitioner and at the same time carrying forward a very important health program.

If there is anything in this world that people can pay for, it should be prenatal obstetric service. Pregnancy doesn't slip up on people like a thief in the night, they have adequate warning. With diphtheria, scarlet fever, appendicitis, or pneumonia, people have no warning as to when it is coming. They have no opportunity to prepare to pay for the services which are needed, whereas in this maternal problem, they have adequate warning, and they have adequate time to save their money and pay for the service.

A great many of them can pay for it if they really want to. It is up to us health workers to make them want to.

CHAIRMAN RHYNE: The next paper we have is that of Dr. Knox on "Preventive Medicine by Inoculation."

PREVENTIVE MEDICINE BY INOCULATION

By J. C. KNOX, M.D., Director,
Division of Epidemiology, North Carolina State Board of Health

From the earliest times man's effort has been directed toward the prevention of disease. In ancient times disease was thought to be warded off by wearing of charms and amulets. Even today we have this rather prevalent practice not only throughout this state but in the South as well. Who has not seen the ball of asafetida in a little bag around the neck of a child to keep him from having, well . . . measles or whooping cough or something else, depending on the section in which he lives. Of course, these things are amusing, but they show a very sincere desire on the part of this individual, though misinformed, to prevent maladies or diseases that are "catching." There are many people who still believe strongly enough in this form of disease prevention to continue its use rather than accept some of the "new-fangled" methods which we offer today. This is a perfectly natural reaction on their part, for the remedy they are using has been tried for generation after generation and its effectiveness as a prevention of illness has increased steadily with each recital of its use. Why, then, should they substitute a remedy which they have never heard of for one that is tried and known?

Protection from disease, except for those which are amenable to community sanitation, is primarily a matter of protection of the individual. Racial or community protection is based upon the number of individuals who are immune to any one disease. Isolated people not in contact with diseases often are very susceptible when exposed to them. Such exposure usually is very disastrous. Resistance of a race or community is based usually on contact with a disease, and oftentimes a very dear price is paid for this immunity, in the death of many people over a long period of time.

Scientific investigators have spent much effort in an attempt to secure a method of conferring immunity in an artificial manner. These efforts have been rewarded in a measure that is encouraging; however, there is considerable room for more investigation along these lines.

SMALLPOX

To Jenner belongs the credit for our first successful protection from disease by vaccination. In 1796 Jenner, through carefully planned and organized methods, demonstrated to the world that vaccination with the cowpox virus would protect an individual from an attack of smallpox. As early as 1774 we have record of vaccination against smallpox, but it was Jenner who advocated its widespread use and demonstrated to the medical world its effectiveness. In the light of our present knowledge there is no other means of successfully controlling smallpox other than by this method which Jenner introduced. Smallpox today is relatively a mild disease in this country. This has not always been true, nor can we expect this same mildness to exist indefinitely, for smallpox has the peculiarity of making its appearance in a most severe form at any time and without previous warning. We therefore should continue our efforts toward securing universal vaccination.

RABIES

The next great step in protection through vaccination came with Pasteur's discovery of the cause of rabies, and with the manufacture of a vaccine for prevention of the disease. This was in 1883, and in 1885 he developed the method of vaccine preparation which is more or less generally in use at the present time. This method of protection is somewhat different from the other forms of vaccination. This treatment is not instituted until after exposure has occurred. This method of control still remains the best procedure in combatting this disease. The vaccination of animals against rabies has not offered us the protection for which we had hoped. In a state such as North Carolina the restriction of dogs and other animals that may develop rabies is, at present, more or less out of the question. There is too much sentiment attached to the dog for us to expect to get very far in the control of rabies through muzzling and confining the dog, as a general protective measure. In the Scandinavian countries and in England rabies is completely eradicated due to this method of restriction of dogs and the quarantine against animals coming from areas known to have rabies present. Australia, by a careful quarantine of imported animals, has avoided having rabies introduced.

TETANUS

In 1890 Von Behring and Kitasato discovered tetanus antitoxin. This turned a new page in the history of disease control. It involved an entirely new method of manufacture of protective agents. At the same time these two workers discovered diphtheria antitoxin. At the present time there is no widespread method by which we are able to control

tetanus other than the original method advocated by these men. This early work of theirs was epochmaking in that it opened up the field of serum therapy. One would appreciate very much some method of determining the necessity for the administration of the tetanus antitoxin. The serum reactions are usually more severe following administration of this antiserum than in others, and for this reason it would be desirable to know when and when not to give this treatment. In certain sections of North Carolina the tetanus organism is found in greater abundance in the soil than in other sections. Physicians in these communities, knowing this to be true, do not hesitate to administer tetanus antitoxin to individuals having wounds of the slightest nature. Very recently active immunization against tetanus by use of tetanus toxoid offers some hope of protection to those individuals living where the tetanus organism is thoroughly seeded. As further reports come to print it is hoped that those few already made will be confirmed as to the value of the procedure.

TYPHOID FEVER

Active immunization to typhoid fever by injection of a suspension of killed typhoid organisms was first used in 1896. Results from this procedure were satisfactory to the extent that it became more widely used. The United States Army adopted this preventive measure in 1899. At first it was entirely optional on the part of the enlisted men and officers of the army. Since 1911 it has been a compulsory measure. Typhoid vaccine probably achieves its greatest usefulness in such organizations as the armies.

Its widespread use as a public health measure has greatly reduced the incidence of the disease, and the death rate from typhoid fever has gradually fallen. Complete eradication of typhoid fever by the use of prophylactic vaccine alone, can hardly be expected. At the present time the morbidity and mortality rate is so low that the wisdom of its use as a general public health measure is in doubt in the minds of many public health officials. With the typhoid fever death rate as low as it is now in North Carolina, 3.9 for 1933, mass immunization becomes a questionable procedure, when it involves considerable expenditure of time and money. Sanitation and more adequate disposal of excreta should receive more attention than the administration of prophylactic vaccine. The institution of a widespread sanitary program not only lessens the typhoid fever rate, but materially reduces other diseases whose origin is similar to that of typhoid fever. The public as a whole has come to look upon "typhoid injections" rather as a ritual which must be followed every three years. While anti-typhoid vaccine has a very definite place in the control of typhoid fever, it should not be used to the exclusion of a general sanitary program.

Within the last two or three years the efficacy of our vaccines has been questioned. This resulted in investigation of the various vaccines then in use. It was found that the old original Rawlings strain, from which most

of the vaccines were made, varied in protective properties ranging from thirty to seventy per cent. Since this investigation has been completed many of the laboratories have substituted new strains in the preparation of typhoid vaccine. Reports come to us that the vaccine in present use in North Carolina causes a greater number and more severe reactions than the old strain; however, we have not received reports from many sources, and whether or not this is true generally we do not know. Some of the patients having typhoid fever give the history of having had the anti-typhoid vaccine as recently as one to three years. A period of from two to three years following the administration of the vaccine usually has been considered the length of time that protection is given. We are naturally concerned with the number of cases of typhoid fever developing within one to three years following administration of the vaccine. We should like to have careful investigation of all typhoid fever cases, with particular reference to their most recent anti-typhoid fever inoculation. This is especially true now that the new vaccine is in use. Until we secure more adequate community sanitation we cannot afford to abandon typhoid fever immunization campaigns as a public health measure.

Paratyphoid fever is not a rare disease in North Carolina. Each year there are a number of cases diagnosed and reported to the State Board of Health. In many instances when typhoid fever is suspected, the laboratory findings reveal the paratyphoid infection. Since paratyphoid fever is definitely encountered in the state it is the part of wisdom to use the triple vaccine, which contains the typhoid and the paratyphoid organisms A and B.

DIPHTHERIA

In 1912 toxin antitoxin mixture was first advocated as a method of active immunization to diphtheria. Shortly thereafter the Schick test was perfected which gave to us a greater knowledge for use in combatting diphtheria. Recently considerable advance has been made in the preparation of biologics used in immunization against this disease. Toxoid has almost entirely supplanted the use of toxin antitoxin. The original toxoid, which was administered in two doses given at an interval of from two to three weeks apart, is now giving way to the alum precipitated toxoid, which is administered in one dose. The percentage of protection, as indicated by a follow-up Shick test, is gratifying. It is possible to eradicate diphtheria completely by immunization. This has been demonstrated in communities in New York State. To achieve this goal of complete eradication it is necessary that we know where and in whom the disease is most prevalent. In compiling our morbidity and mortality statistics on the various reportable diseases we find that in diphtheria fifty-three per cent of the total cases reported to us occur in children under five years of age. The greatest number of cases occur in children of three and four years of age. We find, also, that eighty-six per cent of the total number of deaths from diphtheria occur in children under five years of age. The greatest number of deaths from diphtheria occur in the child one and two years old. These

figures are based on a five year average. Attention in immunization has been given chiefly to the first grader. There has been no willful neglect of the pre-school child, but we must give more attention to this age group if we expect to accomplish the greatest good from diphtheria immunization. Relatively few cases and deaths from this disease occur after one reaches ten years of age.

Passive immunization as a public health measure is of little or no value. In small family outbreaks this procedure may be of value; especially is this true if the child exposed is frail or in poor health, but this method of protection from diphtheria probably is most effectively used by the family physician.

SCARLET FEVER

Within the past few years active immunization against scarlet fever has been accomplished by the administration of scarlet fever toxin. This procedure as yet can hardly be adopted as a public health measure comparable to diphtheria immunization. It is hardly likely that mass immunization will be generally instituted soon. Prophylaxis against scarlet fever, involving the use of the toxin or toxoid preparation, probably will find its greatest usefulness in the field of private practice; however, the State Department of Health in Kentucky has employed it in their local health units, and glowing reports of its success as a prophylactic measure are encouraging, to say the least.

MEASLES

The efficacy of convalescent serum or blood in the prevention of measles is well established, provided it is administered early enough after exposure. This protection lasts for a period of four weeks to two months. Probably the ideal use of convalescent serum is for the modification of the disease rather than its prevention. It is readily seen that general use of this measure necessarily is limited, for the reason that it is difficult to secure enough convalescent serum for this purpose. Adult parent blood usually will answer the same purpose if given in sufficient quantity. Since measles is more serious in children under five years of age, modification of the disease probably should be limited to this age group. McKhan, working with a placental extract, has found the same protective properties as in convalescent blood; this, of course, based upon the provision that the extracts come from individuals who have previously had measles. The manufacture of this material has been placed in the hands of one of the commercial laboratories and probably it will be offered to physicians for more or less general use. Here again, the control of measles by this method probably will be accomplished best by the family physician.

WHOOPING COUGH

The value of whooping cough vaccine in the control of this disease is problematical.

Time will not permit the discussion of some of the other vaccines and serums used in the prevention of disease. The only other one that I might mention is that of vaccine for the protection against Rocky Mountain spotted fever. This disease recently has made its appearance in North Carolina, and at the present times does not constitute a grave public health menace, and the use of the vaccine might be questioned as to its value.

To summarize: (1) We have vaccines and antiserums which are our only methods of prevention of certain diseases, e.g., smallpox and diphtheria.

(2) We have vaccines and antiserums which aid materially in the prevention of diseases in a community, but which are most valuable in conjunction with other control measures, e.g., typhoid fever vaccine.

(3) We have immunizing agents which probably find their greatest usefulness in the hands of the private practitioner, e.g., measles convalescent serum or blood, and scarlet fever toxin or toxoid.

(4) And lastly there are the vaccines the use of which is problematical.

DISCUSSION

CHAIRMAN RHYNE: Is there any discussion of Dr. Knox's paper?

DR. ROY NORTON (Rocky Mount): Mr. Chairman, I know that a good many health workers are using this, but I want to mention it because there are some others of course who haven't yet, and that is the use of letters to mothers as birth certificates come in, giving suggestions along the lines of these inoculations that Dr. Knox has discussed.

Our custom in Rocky Mount is when a birth certificate comes in, we write a letter suggesting these inoculations and the time that they might be given.

When the child is six months old another letter goes out, making the suggestions, particularly emphasizing the diphtheria immunization, and we have found that that has helped us a whole lot.

CHAIRMAN RHYNE: Would anyone else like to take part in this discussion?

DR. J. A. MORRIS (Oxford): Mr. Chairman, Dr. Knox made the optimistic statement, if I understood him correctly, that we can control diphtheria with the antitoxin. Am I right?

DR. KNOX: With antitoxin—immunization.

DR. MORRIS: According to a theory borne out by practical experience, natural immunity covers exposure to diphtheria carriers, and acquired immunity is a fractional immunity from childhood up to maturity.

Suppose we entirely suppress diphtheria, then there will be no more carriers, there will be no more fractional immunity. What are we going to do then?

I would like for him to answer that question, because it occurred to me that might have some bearing, because of the little diphtheria that

we are getting in our county now—five cases in the last three years is all we have had.

This year I think we haven't exceeded so far three cases.

I just thought about that when you said that and wondered what would occur if we did succeed in eradicating carriers.

Now I want to tell Dr. Knox what we did. We received a circular letter offering this immunization to the medical profession. I suppose you sent that out to the whole medical profession, did you not? Or did you just send it to the health officers?

Dr. Knox: The health officers and each county society.

Dr. Morris: Well, a few days after I received that, our county society convened and I presented the matter to them. I asked them if they wanted to do it, assuring them that I would coöperate to the best of my ability.

Everyone in the room shook his head. They said, "We would rather it be just as it is," and they understood in their experience that it would be too much of an interruption of the routine of practice. They all expressed that, "If we have got to have an appointment with somebody for a dose of diphtheria antitoxin or typhoid fever or something of that sort, then we will be bothered in our practice, and we would rather it remain just like it is."

Chairman Rhyne: Is there anyone else?

Dr. A. C. Bulla: Dr. Morris is carrying out the very plan that I have suggested in my paper, that we discuss these things with the county medical society, and get their approval, and then we will not have any criticism coming from them.

Chairman Rhyne: That is a good point, Dr. Bulla.

Dr. J. C. Knox: Mr. Chairman, the question that Dr. Morris has asked, I might answer in this fashion: For the past five years in North Carolina, there have been 1178 deaths from diphtheria. Of that number, 1023 have occurred in children under five years of age.

While diphtheria might not be a problem to Dr. Morris, it is a problem for the State as a whole. I think the goal that we should strive for should be complete eradication of diphtheria. That is possible and then let us worry about its future appearance after we have achieved this goal. (Applause)

. . . Dr. J. C. Knox, Raleigh, was elected chairman of the section for next year and Dr. Roy E. Norton of Rocky Mount, secretary.

. . . Chairman Knox assumed the chair.

. . . Secretary Norton was instructed to confer with the program committee and see if arrangements could be made to hold this section meeting on Tuesday, so that those interested could attend the North Carolina Public Health Association and this section the following day.

. . . No further business appearing, the section adjourned at 4:30.

WOMEN'S AUXILIARY
TWELFTH ANNUAL SESSION

OFFICERS 1933-1934

President—Mrs. J. W. Huston.....Asheville
President-elect—Mrs. J. B. Sidbury.....Wilmington
First Vice-President—Mrs. W. P. Knight.....Greensboro
Second Vice-President—Mrs. Reid Patterson.....Charlotte
Third Vice-President—Mrs. K. B. Pace.....Greenville
Treasurer—Mrs. E. C. Judd.....Raleigh
Corresponding Secretary—Mrs. A. T. Hipps.....Asheville
Recording Secretary—Mrs. P. P. McCain.....Sanatorium

COUNCILLORS

First District—
Second District—Mrs. R. S. McGeachy.....Greenville
Third District—Mrs. J. C. Wessell.....Wilmington
Fourth District—Mrs. W. H. Cobb.....Goldsboro
Fifth District—Mrs. A. B. Holmes.....Fairmont
Sixth District—Mrs. G. H. Macon.....Warrenton
Seventh District—
Eighth District—Mrs. A. D. Owenbey.....Greensboro
Ninth District—Mrs. J. R. Terry.....Lexington
Tenth District—Mrs. B. L. Ashworth.....Marion

OFFICERS 1934-1935

President—Mrs. J. Buren Sidbury.....Wilmington
President-elect—Mrs. C. P. Eldridge.....Raleigh
Chairman Board of Past Presidents—Mrs. P. P. McCain.....Sanatorium
First Vice-President and Chairman of Organization—Mrs. J. W. Huston.....Asheville
Second Vice-President and Chairman of Bed—Mrs. W. T. Rainey.....Fayetteville
Third Vice-President and Chairman of Loan Fund—Mrs. R. A. Schoonover—
—Greensboro
Corresponding Secretary—Mrs. A. H. Elliot.....Wilmington
Recording Secretary—Mrs. K. B. Pace.....Greenville
Treasurer—Mrs. E. C. Judd.....Raleigh

COUNCILLORS

First District—Mrs. Thos. L. Carter.....Gatesville
Currituck, Camden, Pasquotank, Perquimans, Gates, Chowan, Washington, Tyrell, Dare, Hyde.

Second District—Mrs. R. S. McGeachy.....Greenville
Hertford, Martin, Pitt, Bertie, Beaufort, Lenoir, Jones, Craven, Pamlico, Carteret.

Third District—Mrs. J. C. Wessell.....Wilmington
New Hanover, Pender, Onslow, Duplin, Bladen, Sampson, Columbus, Brunswick.

Fourth District—Mrs. W. H. Cobb.....Goldsboro
Northampton, Halifax, Nash, Edgecombe, Johnston, Wilson, Wayne, Greene.

Fifth District—Mrs. A. B. Holmes ..... Fairmont
Cumberland, Robeson, Scotland, Richmond, Moore, Harnett, Chatham, Lee, Hoke.

Sixth District—Mrs. T. C. Wilkinson ..... Wake Forest
Wake, Franklin, Warren, Vance, Granville, Person, Caswell, Alamance, Orange, Durham.

Seventh District—Mr. Reid Patterson ..... Charlotte
Anson, Union, Stanley, Mecklenburg, Montgomery, Cabarrus, Lincoln, Gaston, Cleveland, Rutherford.

Eighth District—Mrs. W. P. Knight ..... Greensboro
Rockingham, Guilford, Randolph, Forsyth, Stokes, Surry, Yadkin, Alleghany, Wilkes, Ashe.

Ninth District—Mrs. J. R. Terry ..... Lexington
Davidson, Davie, Rowan, Iredell, Alexander, Catawba, Caldwell, Watauga, Burke, Avery.

Tenth District—Mrs. B. L. Ashworth ..... Marion
Buncombe, Yancey, McDowell, Madison, Polk, Henderson, Haywood, Transylvania, Jackson, Swain, Macon, Clay, Graham, Cherokee, Mitchell.

According to our By-Laws a Councillor may be elected for three years by the delegates at a District Meeting. In the event no Councillor is elected by her District, the President may appoint one to serve one year in order that the Districts may be organized.

COUNTY PRESIDENTS

Third District—
New Hanover-Pender—Mrs. M. H. Rourk ..... Wilmington
Sampson—Mrs. J. M. Lee ..... Newton Grove

Fourth District—
Greene-Wayne—Mrs. W. B. Murphy ..... Snow Hill

Fifth District—
Cumberland—Mrs. W. T. Rainey ..... Fayetteville
Montgomery—Mrs. H. L. Griffin ..... Star
Moore—Mrs. W. C. Mudgett ..... Southern Pines
Hoke—Mrs. R. A. Matheson, Jr ..... Raeford
Robeson—Mrs. J. A. Martin ..... Lumberton

Sixth District—
Alamance-Caswell—Mrs. R. F. Warren ..... Prospect Hill
Wake—Mrs. W. S. Cozart, Jr ..... Fuquay Springs

Seventh District—
Mecklenburg—Mrs. L. C. Todd ..... Charlotte

Eighth District—
Guilford—Mrs. E. T. Harrison ..... High Point

Ninth District—
Rowan—Mrs. Frank Ellis ..... Salisbury

Tenth District—
Buncombe—Mrs. Allen T. Hipps ..... Asheville

STANDING COMMITTEES

Public Relations—Mrs. R. D. McMillan ..... Red Springs
Hygeia—Mrs. Fred Taylor ..... High Point
Historian—Mrs. Julian A. Moore ..... Asheville
Research—Mrs. Foy Roberson ..... Durham
Memorial—Mrs. I. H. Manning ..... Chapel Hill

PAST PRESIDENTS

1923—(Organizing Chairman)—Mrs. P. P. McCain.....Sanatorium
1924—Mrs. P. P. McCain.....Sanatorium
1925—Mrs. I. W. Faison.....Charlotte
1926—Mrs. J. Howell Way.....Waynesville
1927—Mrs. R. S. McGeachy.....Kinston
1928—Mrs. Benj. J. Lawrence.....Raleigh
1929—Mrs. A. B. Holmes.....Fairmont
1930—Mrs. J. H. Macon.....Warrenton
1931—Mrs. W. B. Murphy.....Snow Hill
1932—Mrs. R. S. McGeachy.....Greenville
1933—Mrs. W. P. Knight.....Greensboro
1934—Mrs. J. W. Huston.....Asheville

EXECUTIVE COMMITTEE MEETING

December 16, 1933—Charlotte

The Executive Committee with eight present held a luncheon meeting in a private dining room at the S & W Cafeteria, Charlotte, December 16, as guests of our President, Mrs. Huston. The minutes of the Executive Committee meeting held in Raleigh after the Annual Meeting were read and approved. The Treasurer, Mrs. E. C. Judd, reported $55.55 in the treasury and $791.78 in the loan fund, $100 of which had been loaned to Miss Genevieve Whittington of Snow Hill. The treasurer moved that the amount left, $691.78, be divided into two accounts of $500 and $191.78 in order to be able to lend more easily without disturbing the interest periods on the entire amount. The motion was seconded and carried. The Treasurer was instructed that the Executive Committee felt a bond was not necessary if the Wachovia carried insurance on deposits. As an emergency measure, pending approval by the Annual Assembly the fiscal year was changed to end March 31 as requested by the Auxiliary to the American Medical Association.

The President made several announcements, among which were:

1. Advisory Committee from State Medical Society:
   Dr. C. V. Reynolds, Asheville
   Dr. J. R. McCracken, Waynesville
   Dr. Dave Tayloe, Washington
2. Loan Committee from State Medical Society:
   Dr. J. R. McCracken, Waynesville
   Dr. C. V. Reynolds, Asheville
3. The appointment of Mrs. A. B. Holmes, Fairmont, to succeed Mrs. O. L. McFadyen, Fayetteville, who resigned as Councillor of the Fifth District.
4. The President announced that Miss Ardis Jester had left the bed at the Sanatorium and that Dr. J. S. Johnson of Wake County had been put on and that the rate had been changed from $1.00 to 50c a day. A letter of appreciation was read from Miss Jester who was in Denver.

A discussion about the Auxiliary standing with Auxiliary to the American Medical Association was held. The Treasurer was asked to write to see if since the money for A. M. A. dues was in a closed bank, the dues for the year could be skipped.

As there was no further business the meeting adjourned.

PROGRAM

Monday, April 30

3:30 p.m.—Ride to State Sanatorium

4:30 p.m.—Tea: Residence of Dr. and Mrs. P. P. McCain
Hostess: Auxiliary to Hoke County Medical Society
Honorees: Mrs. James Blake, Mrs. J. W. Huston, Mrs. I. H. Manning, Mrs. J. B. Sidbury

Tuesday, May 1

9:30 a.m.—Opening Session, State Medical Society
President's Address, Dr. I. H. Manning, Chapel Hill

10:00 a.m.—Executive Board Meeting, Woman's Auxiliary, Dutch Room

MINUTES

The Minutes of the Executive Committee meeting held on December 16, Charlotte, were read and approved.

The President made the following announcements:

1. The Executive Committee should always feel itself a special Hospitality Committee.
2. Auxiliaries should use space in *Southern Medicine & Surgery*.
3. Appreciation of Dr. Huston's stenographic services during the year.
4. Introduction of honor guests—
   Mrs. James Blake, President of Auxiliary to the American Medical Association, Hopkins, Minn.
   Mrs. Southgate Leigh, Norfolk, President of Auxiliary to Southern Medical Association.
5. Auxiliaries should welcome wives of medical students.
6. Every officer should have a handbook.

Under business, Mrs. R. S. McGeachy moved and the motion was carried that the Sanatorium bed be made a permanent project.

After a discussion of the change in the fiscal year the resolution adopted at Charlotte Executive Committee Meeting was unchanged.

As a result of a discussion on the unpaid check for 1932-1933 dues to Auxiliary to the American Medical Association, Mrs. Sidbury moved that the amount of $64.75 be paid.

11:00 a.m.—Annual Auxiliary Meeting, Ladies' Card Room

PROGRAM

MR. J. W. HUSTON, *President*, Presiding

Invocation—Rev. J. Fred Stimson.....Southern Pines
Address of Welcome—Mrs. H. E. Bowman.....Aberdeen
Response to Welcome—Mrs. I. H. Manning.....Chapel Hill
Reading of Minutes—Mrs. P. P. McCain, Recording Secretary..Sanatorium

REPORTS OF OFFICERS

RECORDING SECRETARY

Mrs. P. P. McCain, Sanatorium

The Recording Secretary has attended all three of the Executive Committee Meetings, has written the minutes for each and has sent out the call for the Annual Assembly with a notification as prescribed in the Constitution to all Councillors of a proposed revision of the Constitution.

TREASURER'S REPORT

Mrs. E. C. Judd, Raleigh

RECEIPTS

May 20, 1933-May 1, 1934

May 20, 1933—Received from Mrs. A. B. Holmes (Former Treasurer)	$ 2.23	
236 Members (dues)	236.00	
Donation to Bed—Moore County	45.00	
Donation to Bed—Buncombe County	44.00	
Donation to Bed—New Hanover County	30.00	
Donation to Bed—Guilford County	25.00	
Donation to Bed—Hoke County	20.25	
Donation to Bed—Alamance-Caswell County	11.00	
Donation to Bed—Wake County	8.00	
Donation to Loan Fund—Guilford County	8.00	
		$ 429.48

DISBURSEMENTS

Dues to Southern Medical Auxiliary	$ 5.00	
Dues to the American Medical Auxiliary	59.00	
North Carolina Sanatorium (April 30, 1933 to May 1, 1934)	203.50	
Postage and typing—Mrs. J. W. Huston	8.40	
Postage and typing—Mrs. E. C. Judd	7.78	
Loan Fund (Savings Account)	8.00	
Thirteen Checks at 2 cents	.26	
Bank Service	1.00	
		$ 292.94
Balance		$ 136.54

LOAN FUND

October 11, 1933—Received from Mrs. A. B. Holmes (Former Treasurer)	$ 791.78	
January 20, 1934—Guilford County Auxiliary	8.00	
April 21, 1934—Interest	5.18	
		$ 804.96

DISBURSEMENTS

October 20, 1933—Made a loan to Miss Genevieve Whittington, Snow Hill, N. C.	$ 100.00	
Tax on 1 check	.02	
		$ 100.02
Balance		$ 704.94

Corresponding Secretary

Mrs. A. T. Hipps, Asheville

My work as Corresponding Secretary of the Women's Auxiliary to the Medical Society for the last year has afforded me a great deal of pleasure, and I wish to express my thanks and appreciation to the members for the splendid coöperation accorded me. I've enjoyed the contacts I've made so much and hope to retain these friendships after I'm no longer secretary.

Historian

Mrs. J. A. Keiger, Greensboro

The history has been completed through Mrs. Huston's year and is ready for the new historian.

COUNCILLORS OF THE TEN DISTRICTS

First District

No Councillor.

Second District

No report.

Third District

As Councillor for the Third District to the Women's Auxiliary to the Medical Society of the State of North Carolina I wish to submit this report:

During the year I have written fifteen letters.

In New Hanover and Pender Counties thirty-two members have paid their dues.

It was voted by the Auxiliary to have a card party for the benefit of the bed at Sanatorium and to sell candy at this party for the benefit of the local treasury—all expenses for the card party to be taken from the candy fund. $30.00 was realized from this party and $16.65 from the sale of candy.

Mrs. M. H. Rourk is the President and Mrs. R. B. Hare is President-elect.

In this District Columbus and Bladen Counties have never been organized. Sampson County Auxiliary has Mrs. Jamie Lee as its President.

Respectfully submitted,

MRS. JNO. C. WESSELL.

FOURTH DISTRICT

The Fourth District of the Auxiliary is composed of six adjoining counties and more than twenty-two towns.

We have held two meetings in Goldsboro, one of which was held in my home, which we all enjoyed. Our treasurer sent in dues as she collected them. At our meeting we read the year's report, the work of the Auxiliary and the address given to the Auxiliary by Dr. Wright. We enjoyed the report of the Auxiliary's work.

An account was given of the operation of Jane Todd Crawford, a brave Kentucky woman, who dared in 1809 to go under the surgeon's knife, without an anesthetic, so that others might reap the benefit of her great courage. We hope that this worthy woman may yet be suitably honored, by establishing a memorial of some kind to her. The objects of our Auxiliary are social, philanthropic and educational.

The Auxiliaries of Wayne and Greene Counties are combined. I have written to many of the ladies in different towns, but I did not receive as many replies as I had hoped for.

Respectfully submitted,

MRS. W. H. COBB.

FIFTH DISTRICT

Glad to report that the Auxiliary in the Fifth District is making some progress. Five of the ten counties, Cumberland, Hoke, Robeson, Montgomery and Moore, have an organized Auxiliary. Hope we will be able to organize the other five during the coming year. The District Auxiliary meets once each year and seems to be very much enjoyed by everyone.

MRS. A. BYRON HOLMES.

SIXTH DISTRICT

No report.

SEVENTH DISTRICT

No Councillor.

EIGHTH DISTRICT

Madam President and Members of the State Medical Auxiliary:

Before making my report I would like to introduce the incoming President of the Women's Auxiliary to the Guilford County Medical Society, Mrs. E. T. Harrison, High Point.

No new auxiliaries were organized in the Eighth District during the year. The only active Auxiliary of this District is in Guilford County. This Auxiliary has forty paid-up members. It has contributed $8.00 to the Student Loan Fund and $25.00 to the bed in the Sanatorium.

Last Christmas the members of the Auxiliary sent presents to the patient in the Sanatorium.

In order to raise money we served dinner to our doctors at one of their regular dinner meetings.

We held our four regular meetings.

Respectfully,

Mrs. A. D. Ownbey.

Ninth District

No report.

Tenth District

No report except for Buncombe County.

As President of Buncombe County Medical Auxiliary I'm submitting the following report of the work accomplished by the Auxiliary during the year 1933-1934:

1. Tea at Municipal Golf Club for our new President, Mrs. Huston.
2. Benefit bridge at Vanderbilt Hotel. The sum of $44.00 was realized and forwarded to State Treasurer, to be paid on bed at State Sanatorium.
3. Secured eleven paid-up members.

Sincerely,

Mrs. Alan T. Hipps.

It was moved and motion was carried that these reports be accepted.

NEW BUSINESS

It was moved and carried that a note of thanks be sent Mr. Picquet, Manager of the Carolina Theatre, Pinehurst, for his having the doctors and their wives as his guests on Monday evening.

Mrs. Benj. J. Lawrence's motion was seconded and carried that a note be sent to Dr. J. M. Parrott expressing the Auxiliary's sorrow over his illness and inability to attend the present session of the Society and also to express a hope for a very speedy recovery. The Secretary was instructed to write these notes.

REPORTS OF COMMITTEES

Student Loan Fund

Mrs. W. B. Murphy, *Chairman,* Snow Hill

No report.

Public Relations

Mrs. J. O. McClelland, *Chairman,* Maxton

No report.

Hospital Bed

Mrs. Reid Patterson, *Chairman,* Charlotte

When first asked to act as Chairman of the Bed Fund, I inquired as to my duties. It was agreed that the President write all Councillors first and ask them to have one activity during the year and the proceeds used on the Bed Fund. This was done and in March the President sent an S. O. S. call to me that I see what I could do. The only answers I received were that it would be impossible to do anything before May.

On writing the treasurer I found that we still owed $64.50 on Bed Fund.

Yesterday I was again informed by the treasurer that the Bed Fund was paid in full up to May 1.

It was my privilege to visit the Sanatorium yesterday and see our patient, who is very appreciative of what we are doing for him.

The financial report was read in the treasurer's report, $203.50 for the bed.

Hygeia

Mrs. W. A. Brewton, *Chairman,* Enka

Report of the Chairman of the Hygeia Committee of the Women's Auxiliary to the North Carolina Medical Society:

This report is very brief owing to the fact that there have been very few subscriptions to the *Hygeia Magazine* this year. We have not begun to reach the quota for our State. Only Buncombe has sent in subscriptions —three of them—from which the commission of $3.10 was sent to the treasurer.

I wish to say in this report that the persons interested in promoting *Hygeia* have been handicapped by the depression. However, as times seem to be improving let us hope we can in the year to follow reach the quota for this State.

Mrs. W. A. Brewton.

Entertainment

Mrs. W. C. Mudgett, *Chairman,* Southern Pines

The Ladies are invited to a Card Party on the West Porch at 2:00. There will be an Executive luncheon in the main dining room immediately on adjournment, a dance at 9:30 tonight, and a drive tomorrow at 10:00.

SPECIAL COMMITTEES

Committee to Educational Conference

Mrs. E. C. Judd, Chairman, being absent, the report was read by Mrs. Benj. J. Lawrence telling of Mrs. Judd's representing the Auxiliary at the State-wide Educational Meeting held in Raleigh, the purpose of which was to revise the public school curriculum to meet present needs. The report was accepted and permission given to pass printed forms—which forms were to be filled out and sent to Dr. Allen.

Committee on Revision of Constitution

Mrs. J. B. Sidbury, *Chairman*

(Mrs. Sidbury read the revised by-laws, the Constitution being identical with the National.)

Mrs. Sidbury's motion was seconded and carried which asked that we work under the new constitution for a year before finally adopting it.

The recommendations which were brought from the Executive Board by the Chairman, Mrs. J. W. Huston, were accepted. The recommendations are as follows:

1. The Executive Board recommends that the fiscal year be changed to end March 1st.
2. The Executive Committee recommends that the Auxiliary take care of its obligation to the Auxiliary to A. M. A. for its 259 members as reported at the last Annual Meeting.

Impressions of the Auxiliary to the Amer.can Medical Association Meeting, Milwaukee, Mrs. M. L. Stevens, Asheville:

REPORT OF DELEGATE TO WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

Mrs. M. L. Stevens, Asheville

The annual meeting of the Auxiliary to the American Medical Association was held in Milwaukee last June. Milwaukee is a beautiful city and we were impressed by the wonderful hospitality which greeted us everywhere. In each hotel a hostess was on duty at all times to meet us and introduce us to each other. In fact, the friendliness of our hostess was outstanding and permeated the whole meeting.

The attendance was gratifying and registration reached 974. Including board members, delegates, members, and guests, forty-four states were represented as well as District of Columbia.

The sudden serious illness and death of our beloved President, Mrs. Walter Jackson Freeman, which occurred during her term of office, caused some interruption in the program as planned for the year, but Mrs. James F. Percy assumed office and carried on in a most efficient manner. She made a most gracious presiding officer, and handled the business of her office in a masterly way.

A memorial service was held for Mrs. Freeman at which time Mrs. Augustus Kech of Altoona, Pa., paid a most beautiful tribute. It was most fitting for Pennsylvania to render the official tribute of respect to Mrs. Freeman for she was a much loved woman in her home state.

The program for the annual meeting had been carefully planned, and the manner in which it was carried out showed the enthusiasm of the Auxiliary members present. The reports of the various state Auxiliaries showed progress in the work of these component organizations and were illuminating as showing the many and varied ways in which they were helping the medical profession and the public in their own local fields.

A full report of the activities of the National Auxiliary would interest you, but of course is not expected here. (Besides Mrs. James Blake, President of the National Auxiliary is with us and it is possible that she may tell you of them.) However, there are several things that I should like to mention. One is that the Southern states showed the largest number of new auxiliaries organized within the year. Another is that the Public Relations Committee reported North Carolina as one of the states which has done outstanding work in outlining programs for lay groups, also for broadcasting health talks over the radio. Georgia also received special commendation. Mrs. J. Bonner White of that state gave thirty-nine talks on Mother Welfare and eighteen on Personal and Social Hygiene, and she has the distinction of being appointed on the Cancer Commission of the State Medical Association. I could mention many others just as interesting, but time does not permit.

I wish especially to commend the report of the Public Relations Committee as containing valuable information concerning useful lines of endeavor for local auxiliaries, and I agree with the sentiment as expressed in the closing sentence of the Committee's report that Public Relations work is the essential reason for our existence as an Auxiliary.

The social affairs arranged for those in attendance included tours of many private gardens with tea served in the homes, luncheons at hotels and clubs, and drives through the city and along its lake shore and environs, our hostesses leaving nothing undone to make our stay in their city a delightful memory.

Respectfully submitted,

MRS. M. L. STEVENS.

Report of representative to Auxiliary to Southern Medical Association, Mrs. John Symington, Carthage, was made verbally.

GREETINGS

DR. I. H. MANNING, President,

Medical Society of the State of North Carolina, Chapel Hill

Ladies of the Auxiliary:

I wish to bring the greetings of the State Medical Society to the Women's Auxiliary.

It is a very rare privilege for me to have the opportunity of talking to a group of women; so rare that I am unwilling to forego it. I have always felt that if I could get the women interested in any program that I had in mind I could put it over, and I have such a program in mind now. I realize that the wife of a doctor is bound to some extent at least by his ethical code, but I hope she is not so hypersensitive as the doctor himself may be. There is no reason that I am able to see why a doctor or a doctor's wife should not take an active part in civic affairs, and I believe it a duty to take the leadership in those civic affairs involving medical problems, especially the problems of community health and the public schools. Doctors' wives are in a position to obtain sound advice on such problems and to pass it on to other women in the community. If it should perchance result in some business for the doctor, the doctor's wife should not be estopped from attempting to bring about improvements in health conditions in the community and child life by an incident, provided the incident is not the primary purpose.

There are two definite problems that I have in mind, both of which have an especial appeal to women, and I hope you will undertake them as a body. The first is the domestic servant problem. I do not have to tell you of the danger to the family from the domestic servant. The close contacts open the way for all sorts of infections, and certainly the mothers have the right to demand that domestic servants, especially cooks and nurses, shall be required to furnish a health certificate. My own judgment is that every domestic servant should be required to register with the health officer and should be given an examination for tuberculosis, venereal disease and other chronic infectious diseases at regular intervals. In no other way can the children be protected. Every now and again some community will get excited over this problem and all of the food handlers will be given a Wassermann test for syphilis and then nothing more will be done for several years—perhaps never again. To be effective it must be persistent. To carry such a program through means real persistent work.

The school is to a very large extent the introduction of the child to social life and in this country to the principles of democracy. So long as the child is under the protection of the home, the contacts are limited, but the moment he or she enters the public school the contacts are enormously enlarged and to a very large extent uncontrolled. Dr. McCain is looking after the tuberculosis problem so efficiently that all that is needed is to support him.

The special problem that I have in mind is the under- or malnourished and the mentally backward child. While these two conditions are often related as cause and effect, they may be entirely independent of each other. They are both serious medical and economic problems. The problem of under- or malnutrition is by no means so simple as it seems. The cause may not be in the quantity and quality of the food, but in some condition of the child itself. Nasal obstructions, intestinal parasites, focal infections, glandular and other physical defects are common causes, but parents need

to learn to have the family physician make the examination and not leave it to the perfunctory examination of the school nurse.

We may assume, I think, that under- or malnutrition is a contributory, if not the actual cause of mental backwardness. But there are mentally backward children who are not undernourished and vice versa, and they present a far more difficult problem. So far as I have been able to discover there has never been an attempt to correlate mental backwardness and physical handicaps, and therefore responsibility for repeating in the grades has never been fixed. The problem is, I believe, educational, but there is always the possibility of its being medical and thus an alibi for both parent and teacher. I know of nothing requiring a more thorough-going study than mental backwardness or one more necessary from every point of view.

The average cost per child repeating the grade in Durham (city and county) was in 1932-33 $65 per year, and there were twelve hundred of them in round numbers. The total cost therefore was $77,000. Dr. London, chairman of a committee from the Durham-Orange County Medical Society, with two other pediatricians, offered to make a thorough-going examination of these children for $1,500, but the School Board and County Commissioners refused to make the appropriation. If we could make a study of this problem in three or more representative counties, we could perhaps make a real contribution to public education. It was with this in mind that I suggested the program to Dr. London and his committee.

Two years ago, as many of you may remember, the announcement was made by state officials, that repeating the grades in the public schools was costing the State approximately six million dollars each year. The announcement aroused some consternation among the business people and provoked much discussion. The governor called into consultation representative medical men which carried the implication that the problem was in part at least a medical problem. The Equalization Board had set apart $30,000.00 for health work among the schools, but when the proposition to use this money to study the problem in representative counties was made, the Board refused on the ground that such funds had to be distributed according to certain principles set up by the Board itself. As a result of this ruling the large proportion of this fund was distributed through the dentists in the mouths of the school children and nothing was accomplished in the solution of the real problem. The number of children failing of promotion in the public schools was estimated at that time to be two hundred and fifty thousand. The study of all of these children was a Herculean task for the doctors of North Carolina, and they were in effect invited to do this work without compensation.

Last summer the Federal Relief agencies in Washington and I believe Miss Perkins, Secretary of Labor, really took the initiative, became acutely concerned over the reported malnutrition among school children, and General Johnson, with his usual energy, called a conference and proceeded to set up an organization to look after it. He evidently did not realize

the magnitude of the job, and assumed that it was only a question of food. Therefore, there was no appropriation of funds for medical supervision. The Medical Society offered Mrs. O'Berry the services of a committee of pediatricians and general practitioners to advise her, if the program was to be worked out, but so far as I know the committee was never called.

There has thus far been no coördinated attempt to solve the problem of malnutrition or of the backward child in North Carolina. The small amount of money available has been spent on the teeth, decay of which is the result of and not the cause of malnutrition. This is also a real problem and will require much and persistent effort, but I have faith in you if you will undertake it.

ADDRESS OF PRESIDENT

Mrs. J. W. Huston, Asheville

I shall make my report as brief as possible so as to give our National President, Mrs. Blake, who has come all the way from Minnesota to be with us, every available minute to chat with us concerning Auxiliary matters in general.

I sensed very early in the year that this was no time to urge new projects, or even the expansion of old ones; that, if we could "hold fast the lines" we would be doing much and our accomplishments have far exceeded my expectations.

I have been unable to accept the invitations to several county and district meetings very much to my regret, but have attended one District Meeting, three Auxiliary Meetings and one Executive Board Meeting held in Charlotte in December. At this time we found ourselves temporarily suspended from the National Auxiliary because $41.00 set aside last year for National dues, was frozen in a closed bank. It is still frozen but our back dues are paid notwithstanding.

Bulletins of this meeting were sent to all officers and 283 personal letters and cards have been written. We have 20 counties in 16 active auxiliaries with a paid-up membership of 238, fully 100 more than I dared hoped for. Our youngest auxiliary, Mecklenburg County, reports the largest membership, 37, while Moore County reports the largest contribution to the Bed Fund, $45.00.

Our bed at Sanatorium has been occupied by a young North Carolina physician just out of medical school, from whom I recently received a note of appreciation. The upkeep of the bed is paid in full to date.

When I received a written report of our activities from our treasurer last week I felt like singing the Doxology all by my lonesome.

Our Student Loan Fund has been put to work and the daughter of a physician has been given a lift along the road of her education.

These things could not have been accomplished by our officers alone—credit is due every loyal private behind the lines and I thank each and every one of you.

Mrs. S. L. Crow of Asheville, Chairman of the Jane Todd Crawford Memorial, was unable to be with us. Let me say in passing that the Woman's Club of Greensburg, Kentucky, home town of Mrs. Crawford, has established a public library and named it in her honor, and the road from Greensburg over which she rode 60 miles on horseback to the home of Dr. McDowell, has been named the Jane Todd Crawford Trail.

Much more could be accomplished along the lines of health education and through our Public Relations than has been done so far. There never has been a greater demand for a keen interest in health education nor a greater opportunity to help than right now when schools and cities are being compelled to cut their health budgets to the core—many schools being forced to eliminate them entirely.

May I urge each Auxiliary to get copies of the study envelopes sent out by the Program Committee of the National Auxiliary—yours for the asking. There is much to be learned from them even by doctors' wives. Then pass them on to your friends in the laity group and, better still, interest your Parent-Teacher and Club groups in them. In the rural communities supply women in the Farm Club groups. Five thousand copies of these studies were sent out last year.

Let us become "*Hygeia* conscious," spreading the gospel of health in an authentic and interesting way wherever its pages are turned. A copy should be on every library table as well as in every doctor's office. Let us see to it that in some way or other *Hygeia* is placed in every school, every library, and every public reading room in this fair state of ours.

The *A. M. A. Journal* publishes a Bulletin every month. It contains Auxiliary news. Help your husband to form the habit of bringing it home to you—then *read* it. It will sharpen your interest in Auxiliary matters.

Try to have four meetings a year—a social meeting to which you bring as a guest, a doctor's wife who is not a member; one at which you discuss the accomplishments of other auxiliaries, county and state; one, a health program; and last but by no means least, a "Bring Your Husband" dinner or picnic.

Again I wish to thank Dr. Manning for his personal interest in our organization. I also want to thank our Advisory Committee, Dr. Carl Reynolds, of Asheville, Dr. J. R. McCracken, of Waynesville, and Dr. D. T. Tayloe of Washington. All three have been glad to assist when called upon, and Dr. Reynolds as chairman has been most helpful, giving cheerfully of his time and advice whenever I have gone to him.

Be sure to have an Advisory Committee appointed by the president of your county medical society, and *use* it.

The South led in the organization of new auxiliaries last year. Let us do our share during the coming year. If there is no auxiliary in your county become a member-at-large and some nice day furnish your nearest auxiliary with a visitor. I am sure you will be welcome.

This is our eleventh anniversary. We have done much during the past ten years to help others. Sometimes "Charity begins at home" and at the

start of another decade of service I would like to see a fund started which would be used by our president in attending the meetings of both the National and Southern Auxiliaries each year. I would also like to see a copy of the Handbook placed in the hands of every officer and county president to be passed on to her successor in office each year.

To every officer goes my sincere appreciation of your efforts to make this a successful year and to the Auxiliary as a whole my deepest appreciation for having been given the privilege to serve you as president. What it has meant to me you will never know because words are inadequate to express it.

ADDRESS

Mrs. James Blake, President of the Woman's Auxiliary to the American Medical Association, Hopkins, Minn.

We find our program sort of a three-sided combination, the social side, the philanthropic work, and educational work, perhaps I should say, our Public Relations work. This has been a State Year, every county and every state has been urged to seek its Advisory Board's ideas for a year's program of work. State by state we find many problems offered to the Auxiliary for their year's work. But it has been gratifying to the Auxiliary to have the Advisory Boards come forward in almost every state with the common problems that beset the medical profession as a whole, and to ask help from Auxiliary wives in solving some of these many difficult local situations. Through all our work we find the Public Relations program to be the most important. In all Public Relations work, every Auxiliary member should have an intelligent vision of the true scope of Auxiliary work. Every woman must have convictions and still be able to look at a question with cool consideration and courage to stand by her convictions. She must be unblinded by enthusiasm, she must look at a question from all sides, with generosity and that kindness of judgment which makes her quick to praise and slow to question the motives of others.

Self-education is necessary for every Auxiliary woman if she is going to be able to talk intelligently on many topics pertaining to the medical profession today. I think we should read magazines we do not like, and read newspapers with which we do not agree, in order to get the viewpoint of the other person.

We should hear talks on subjects outside and contrary to our pet organization's program, in short, find out what the opposition is thinking and feeling about things. I believe this is part of our self-education, knowing our own side, and the other fellow's side, and being able to talk to our own side of the question. In this way, and in this way only, can you become broadminded and keep from becoming lopsided mentally. Women seem to be afraid to hear discussed the things they don't believe, or the things they don't want to believe. They are determined to hear repeatedly only those things with which they are thoroughly conversant and with which they agree 100%.

Perhaps right there is the reason for hours of weary platitudes and piles of propaganda instead of live statements giving real information, the reason why we have speeches instead of informative discussions by experts.

GREETINGS TO THE WOMEN'S AUXILIARY TO THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Mrs. Southgate Leigh

President Auxiliary to Southern Medical Association, Norfolk, Va.

I came to Pinehurst to bring most cordial greetings; a word of good cheer, good will, and friendliness; a word of courage to support our mission, courage to keep in step or abreast with our husbands in all affairs concerning the medical profession, and courage to assume leadership and responsibility in your county for the good of the general health of the people.

The Southern Auxiliary was organized for social purposes. It has two projects only: First, I am asking that each state appoint a chairman of research into medical history, investigating lives of medical heroes in your state. Then I am asking that a chairman of the Jane Todd Crawford Memorial Fund be appointed.

I extend to you a cordial invitation to attend the Southern Breakfast in Cleveland in June. A hearty reception will be waiting for you in San Antonio in November.

I leave you with a word of Dr. Frees from Pennsylvania: " 'Tis the human touch in this world that counts—the touch of your hand and mine."

ELECTION OF OFFICERS

Report (see officers for 1934-35) by Mrs. Wesley Taylor, Greensboro, unanimously adopted.

ANNOUNCEMENTS—Mrs. J. B. Sidbury

Executive Committee meeting changed from Wednesday 2:00 p.m. to Tuesday 5:00 p.m., Dutch Room.

REPORT OF COURTESY COMMITTEE

The Courtesy Committee wishes on behalf of the members of the Woman's Auxiliary to the Medical Society of the State of North Carolina, to extend thanks to Dr. and Mrs. P. P. McCain and Auxiliary to Hoke County Medical Society for the drive to the Sanatorium and the lovely tea. To the Moore County Medical Society and Woman's Auxiliary to the Moore County Medical Society for the beautiful prizes given at the bridge tournament. To Mr. Chas. Picquet for the cordial invitation to

attend the moving picture show as his guests. Finally, to all others in Moore and Hoke Counties who helped so graciously in making the meeting the most pleasant and most outstanding that has ever been held.

Mrs. R. S. McGeachy, *Chairman,*
Mrs. A. B. Holmes,
Mrs. Reid Patterson,
Mrs. G. M. Cooper.

ADJOURNMENT

2:00 p. m.Bridge.

6:00 p.m.—Dinner Meeting (see information for ladies, below)

9:00 p.m.—President's Reception and Twelfth Annual Medical Society Ball

Wednesday, May 2

10:00 a.m.—Drive
Orchid Gardens, Knollwood, Southern Pines
Ambassador Page's Tomb, Aberdeen

INFORMATION FOR LADIES

1. Register on arrival and receive badge, $1.00 registration fee for all who do not present 1933-1934 membership card.
2. Wear badge to all functions.
3. No extra charge for dinner meeting for those stopping at The Carolina, $1.50 for others.

LADIES ENTERTAINMENT COMMITTEE

Mrs. W. C. Mudgett, *Chairman*.....Southern Pines
Mrs. A. McN. Blair.....Southern Pines
Mrs. J. S. Milliken.....Southern Pines
Mrs. E. L. Prizer.....Southern Pines
Mrs. E. M. Poate.....Southern Pines
Mrs. P. J. Chester.....Southern Pines
Mrs. J. W. Dickie.....Southern Pines
Mrs. R. G. Rosser.....Vass
Mrs. A. McN. Blue.....Carthage
Mrs. Chas. T. Grier.....Carthage
Mrs. John Symington.....Carthage
Mrs. H. E. Bowman.....Aberdeen
Mrs. M. W. Marr.....Pinehurst
Mrs. P. P. McCain.....Sanatorium
Mrs. S. M. Bittinger.....Sanatorium
Mrs. J. S. Williams.....Sanatorium
Mrs. C. G. Milham.....Sanatorium
Mrs. Alban Papineau.....Sanatorium
Mrs. C. D. Thomas.....Sanatorium
Mrs. W. F. Thornton.....Sanatorium

ROSTER OF MEMBERS, 1933-34

Abel, Mrs. J. F. ..... Waynesville
Anderson, Mrs. C. A. ..... Burlington
Ashworth, Mrs. W. C. ..... Greensboro
Austin, Mrs. Fred ..... Charlotte
Averett, Mrs. K. G. ..... Cedar Creek
Baker, Mrs. H. M. ..... Lumberton
Banner, Mrs. C. W. ..... Greensboro
Barefoot, Mrs. Graham B. ..... Wilmington
Barron, Mrs. A. A. ..... Charlotte
Barret, Mrs. H. P. ..... Charlotte
Berry, Mrs. John ..... Greensboro
Beam, Mrs. R. S. ..... Lumberton
Beard, Mrs. G. D. ..... Atkinson
Beasley, Mrs. E. B. ..... Fountain
Bell, Mrs. Felix O. ..... Burlington
Bellamy, Mrs. R. H. ..... Wilmington
Bizzell, Mrs. T. M. ..... Charlotte
Benson, Mrs. N. O. ..... Lumberton
Bittinger, Mrs. S. M. ..... Sanatorium
Brewton, Mrs. W. A. ..... Asheville
Brenizer, Mrs. A. G. ..... Charlotte
Bridger, Mrs. D. H. ..... Bladenboro
Britt, Mrs. J. N. ..... Lumberton
Brooks, Mrs. R. E. ..... Burlington
Brown, Mrs. G. W. ..... Raeford
Buie, Mrs. R. M. ..... Greensboro
Bulluck, Mrs. E. S. ..... Wilmington
Bulla, Mrs. A. C. ..... Raleigh
Byrd, Mrs. J. F. ..... Waynesville
Caldwell, Mrs. M. M. ..... Wilmington
Campbell, Mrs. A. C. ..... Raleigh
Carrington, Mrs. G. L. ..... Burlington
Caviness, Mrs. Z. M. ..... Raleigh
Cobb, Mrs. W. H. ..... Goldsboro
Coddington, Mrs. H. A. ..... Wilmington
Combs, Mrs. J. J. ..... Raleigh
Cooper, Mrs. G. M. ..... Raleigh
Cozart, Mrs. W. S. ..... Fuquay Springs
Cranmer, Mrs. J. B. ..... Wilmington
Crouch, Mrs. A. McR. ..... Wilmington
Crow, Mrs. S. L. ..... Asheville
Currie, Mrs. D. S. ..... Parkton
Davis, Mrs. P. S. ..... High Point
Davis, Mrs. R. B. ..... Greensboro
Dees, Mrs. R. E. ..... Greensboro
Durham, Mrs. C. W. ..... Greensboro
Eldridge, Mrs. C. P. ..... Raleigh
Ellis, Mrs. Frank ..... Salisbury
Elliott, Mrs. J. A. ..... Charlotte
Elliott, Mrs. A. H. ..... Wilmington
Evans, Mrs. J. E. ..... Wilmington
Flagge, Mrs. P. W. ..... High Point
Fox, Mrs. N. A. ..... Greensboro
Freeman, Mrs. J. D. ..... Wilmington
Frizelle, Mrs. M. T. ..... Ayden
Gage, Mr. T. G. ..... Charlotte
Gallant, Mrs. R. M. ..... Charlotte
Gaul Mrs. J. S. ..... Charlotte
Garrenton, Mrs. Cecil ..... Bethel
Gilmore, Mrs. C. M. ..... Greensboro
Gibson, Mrs. M. R. ..... Raleigh
Goodwin, Mrs. O. S. ..... Apex
Graham, Mrs. B. R. ..... Wilmington
Green, Mrs. T. M. ..... Wilmington
Groome, Mrs. J. G. ..... High Point
Hall, Mrs. J. S. ..... Wilmington
Hamilton, Mrs. J. H. ..... Raleigh
Hardin, Mrs. E. R. ..... Lumberton
Harden, Mrs. R. N. ..... Greensboro
Hare, Mrs. R. B. ..... Wilmington
Hart, Mrs. V. K. ..... Charlotte
Harris, Mrs. T. W. ..... Troy
Harriss, Mrs. A. H. ..... Wilmington
Harrison, Mrs. E. T. ..... Greensboro
Harvey, Mrs. W. W. ..... Greensboro
Haywood, Mrs. Hubert ..... Raleigh
Hege, Mrs. J. R. ..... Winston-Salem
Hiatt, Mrs. H. B. ..... High Point
Hicks, Mrs. V. M. ..... Raleigh
Highsmith, Mrs. J. Frank ..... Fayetteville
Highsmith, Mrs. Seavey ..... Fayetteville
Hill, Mrs. M. D. ..... Raleigh
Hipp, Mrs. E. R. ..... Charlotte
Hipps, Mrs. A. T. ..... Asheville
Hoggard, Mrs. J. T. ..... Wilmington
Holmes, Mrs. A. B. ..... Fairmont
Holt, Mrs. D. W. ..... Greensboro
Hooper, Mrs. J. W. ..... Wilmington
Homer, Mrs. W. A. ..... Charlotte
Huffine, Mrs. Thomas ..... Asheville
Huston, Mrs. J. W. ..... Asheville
Ivey, Mrs. H. B. ..... Goldsboro
Irvin, Mrs. Henderson ..... Eureka
Jackson, Mrs. W. L. ..... High Point
Jennings, Mrs. J. G. ..... Thomasville
Johnson, Mrs. George ..... Oleander
Johnson, Mrs. T. C. ..... Lumberton
Jordan, Mrs. W. S. ..... Fayetteville
Judd, Mrs. J. M. ..... Varina
Judd, Mrs. E. C. ..... Raleigh
Justice, Mrs. William ..... Asheville
Ketchie, Mrs. J. M. ..... Salisbury
Keiger, Mrs. J. A. ..... Greensboro
King, Mrs. E. C. ..... Wake Forest
Kirksey, Mrs. W. A. ..... Hope Mills
Knight, Mrs. W. P. ..... Greensboro

Koonce, Mrs. S. E.....Wilmington
Kremer, Mrs. C. E. J.....Charlotte
Kutscher, Mrs. G. W.....Asheville
Lawrence, Mrs. B. J.....Raleigh
Lilly, Mrs. J. M.....Fayetteville
Liverman, Mrs. (?).....Winterville
Long, Mrs. E. T.....High Point
Lowry, Mrs. Elmer F.....Raleigh
Lowery, Mrs. J. R.....Salisbury
McBane, Mrs. T. W.....Pittsboro
McCain, Mrs. P. P.....Sanatorium
McGee, Mrs. J. W.....Raleigh
McGeachy, Mrs. R. S.....Greenville
McKay, Mrs. H. W.....Charlotte
McKay, Mrs. Robert E.....Charlotte
McKay, Mrs. W. P.....Fayetteville
McKeithan, Mrs. David G.....Fayetteville
McKenzie, Mrs. Whitehead.....Salisbury
McKnight, Mrs. Roy.....Charlotte
McLaughlin, Mrs. C. S.....Charlotte
McMillan, Mrs. R. D.....Red Springs
McPheeters, Mrs. S. B.....Charlotte
McAnnally, Mrs. Wm. J.....High Point
McIntyre, Mrs. S.....Lumberton
Manning, Mrs. I. H.....Chapel Hill
Maness, Mrs. A. K.....Greensboro
Mann, Mrs. I. T.....High Point
Marsh, Mrs. J. H.....Fayetteville
Martin, Mrs. J. A.....Lumberton
Matheson, Mrs. R. A.....Raeford
Matthews, Mrs. V. M.....Charlotte
Mebane, Mrs. W. C.....Wilmington
Milan, Mrs. D. F.....Raleigh
Millam, Mrs. C. G.....Sanatorium
Miller, Mrs. R. B.....Goldsboro
Miller, Mrs. O. L.....Charlotte
Mitchiner, Mrs. J. S.....Raleigh
Moncure, Mrs. Wm.....Salisbury
Moore, Mrs. H. B.....Graham
Moore, Mrs. W. H.....Wilmington
Moore, Mrs. J. A.....Asheville
Motley, Mrs. Fred.....Charlotte
Murchison, Mrs. D. R.....Wilmington
Murphy, Mrs. W. B.....Snow Hill
Murray, Mrs. R. L.....Raeford
Myers, Mrs. Alonzo.....Charlotte
Montgomery, Mrs. H. M.....Burlington
Neblett, Mrs. H. C.....Charlotte
Newton, Mrs. H. L.....Charlotte
Northington, Mrs. J. M.....Charlotte
Ogburne, Miss Hilda.....Greensboro
Ownbey, Mrs. A. D.....Greensboro
Papineau, Mrs. Alban.....Sanatorium
Parker, Mrs. H. R.....Greensboro
Patterson, Mrs. Reid.....Charlotte
Peeler, Mrs. Clarence.....Charlotte
Peery, Mrs. V. P.....Kinston
Powers, Mrs. F. P.....Wilmington
Pope, Mrs. H. T.....Lumberton
Rankin, Mrs. W. S.....Charlotte
Ray, Mrs. Frank.....Charlotte
Rainey, Mrs. W. T.....Fayetteville
Reeves, Mrs. Chas.....Greensboro
Register, Mrs. F. M.—
—Caswell Training School, Kinston
Ricks, Mrs. L. E.....Fairmont
Robertson, Mrs. J. N.....Fayetteville
Robertson, Mrs. L. H.....Salisbury
Robertson, Mrs. J. F.....Wilmington
Rourk, Mrs. M. H.....Wilmington
Royal, Mrs. B. F.....Morehead City
Rogers, Mrs. J. R.....Raleigh
Royster, Mrs. H. A.....Raleigh
Sasser, Mrs. T. J.....Charlotte
Schoonover, Mrs. R. A.....Greensboro
Scruggs, Mrs. Marvin.....Charlotte
Seay, Mrs. T. W.....Salisbury
Shaw, Mrs. J. A.....Fayetteville
Shaw, Mrs. Colin.....Atkinson
Sharpe, Mrs. F. A.....Greensboro
Shelbourne, Mrs. P. A.....Greensboro
Sidbury, Mrs. J. B.....Wilmington
Sisk, Mrs. C. N.....Waynesville
Sloan, Mrs. H. L., Jr.....Charlotte
Sloan, Mrs. Allen B.....Mooresville
Slate, Mrs. W. C.....Spencer
Slocum, Mrs. R. B.....Wilmington
Smith, Mrs. J. M.....Rowland
Smith, Mrs. Frank.....Charlotte
Squires, Mrs. C. B.....Charlotte
Stevens, Mrs. M. L.....Asheville
Strong, Mrs. W. M.....Charlotte
Strosnider, Mrs. C. F.....Goldsboro
Sumner, Mrs. Howard.....Asheville
Sumner, Mrs. E. A.....High Point
Symington, Mrs. John.....Carthage
Spicer, Mrs. John.....Goldsboro
Tankersly, Mrs. J. W.....Greensboro
Tatum, Mrs. W. L.....Salisbury
Taylor, Mrs. J. T.....Greensboro
Taylor, Mrs. F. R.....High Point
Taylor, Mrs. J. E.....Morganton
Taylor, Mrs. J. W.....Greensboro
Terry, Mrs. J. R.....Lexington
Thornton, Mrs. W. F.....Sanatorium
Thompson, Mrs. Raymond.....Charlotte
Thomas, Mrs. C. D.....Sanatorium
Tice, Mrs. W. T.....High Point

Todd, Mrs. L. C.....Charlotte
Walker, Mrs. J. B.....Burlington
Walters, Mrs. C. M.....Burlington
Warren, Mrs. R. F.....Prospect Hill
Wessell, Mrs. J. C.....Wlimington
Wilkerson, Mrs. C. B.....Raleigh
White, Mrs. Alex.....Asheville
Whittington, Mrs. W. W.....Snow Hill
Wilkinson, Mrs. C. T.....Wake Forest
Wilkinson, Mrs. R. W., Jr.....Wake Forest
Willis, Mrs. A. P.....Candler
Willis, Mrs. W. M.....Farmville
Williams, Mrs. J. H. ..... Sanatorium
Winstead, Mrs. J. L.....Greenville
Wishart, Mrs. W. E.....Charlotte
Wolf, Mrs. N. C.....Burgaw
Wood, Mrs. E. J.....Wilmington
Woodard, Mrs. A. G.....Goldsboro
Woodson, Mrs. C. W.....Salisbury
Wright, Mrs. J. B.....Raleigh
Yarborough, Mrs. Frank.....Cary
Yoder, Mrs. P. A.....Winston-Salem
Verdery, Mrs. W. C.....Fayetteville

PROCEEDINGS

Twenty-Fourth Annual Meeting

OF THE

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

President
Dr. F. M. Register, Kinston

Vice-President
Dr. Z. P. Mitchell, Henderson

Secretary
Dr. D. E. Ford, Washington

CAROLINA HOTEL
PINEHURST, NORTH CAROLINA
APRIL 30, 1934

PROCEEDINGS

Twent-fourth Annual Meeting

OF THE

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

MONDAY MORNING SESSION

April 30, 1934

The Twenty-Fourth Annual Meeting of the North Carolina Public Health Association convened at nine fifty-five o'clock in the Ladies' Card Room, The Carolina Hotel, Pinehurst, North Carolina, Dr. F. M. Register, President, presiding.

Secretary Ford: Dr. Register seems to have put it on to me—he is still giving orders—to start these proceedings. As we have all registered, I presume, we will start right in.

We hope—I am speaking for Dr. Register—that we can go through without too much delay. The program was made a little bit shorter this year so that there wouldn't be anyone pinched out just before dinner or just before time to leave in the afternoon because others ahead of them took too much time and left those poor fellows at the tail end hanging fire with their efforts to write interesting papers, talking to empty chairs. So we hope today that everyone will keep within the allotted time and that there will be no hitches and delays at the end.

Secretary Ford: The first part of the program always consists of the President's Address. Dr. Register is with us as health officer for the last time perhaps. He has left our ranks, as we all know, but he is still President of this organization and we are going to be fortunate in having him with us just a little longer. We are pleased I am sure to hear his address this morning.

President Register: I am certainly glad to see so many people out this morning.

With reference to this paper that I am going to read, I should like to say that I am entirely responsible for it and up to this time it has not been endorsed by any health officer or health organization. The title is, "New Deal in Public Health."

NEW DEAL IN PUBLIC HEALTH

By Dr. F. M. Register, Kinston

For the last year or two, we have been hearing much about a "New Deal." "New Deal" for farmers, bankers, manufacturers, merchants, executive officers, and laborers. The first time I ever heard the words

"New Deal" was when I was a boy. I heard men who were playing cards say, "I want a 'New Deal,' I haven't enough cards." The cards were all put back into the pack and a new deal was made. There has never been two words more expressive or two words better understood by everyone than the words "New Deal." A new deal that will give everyone his rightful share of property and opportunity. A new deal for every branch of government in order that each division of government may function 100%.

Public Health has needed a "New Deal" for a long time. Public Health, the most important branch of government, both federal and state, has been very much neglected in appropriations in proportion to its value and in proportion to other branches of government. Most any commission could get a larger appropriation than Public Health.

I have been generalizing—now we will come down to cases—Public Health as a state and county function. This is the public health with which we are all acquainted and for which we are asking a "New Deal" and for which a "New Deal" is so much needed. When public health work first started in North Carolina as a county function, it occurred to those who had the selling of this service to the counties; that public health could not be sold unless a chromo or free goods were offered along with public health. The chromos offered had nothing to do with public health, but were a service of curative medicine. The argument of the salesman was that Public Health would cost nothing. It should have been stated that it will cost, but is worth all that it will cost. Here are some of the chromos or free goods offered to the county commissioners. One was that the practice of county home and jail would be taken over by the Health Officer. Another was that the practice of medicine among the indigent of the county would be done by the Health Officer, first those that came to the office, then those indigent cases scattered over the county and unable to come to the office would be looked after, thereby effecting a great saving. Another chromo was a life extension unit, physical examination by the Health Officer for every man and woman in the county. Other chromos were venereal disease clinics, typhoid clinics, diphtheria clinics, baby clinics, examination of food handlers, examination for marriage and various and sundry things that should and must be done, but that clearly belonged to the practice of medicine, losing sight of the fact that public health is educational and for the masses and that the practice of medicine is for the individual. It does not matter whether it is a dose of serum, arsphenamine, ipecac or calomel, it comes under the head of practice of medicine, our efficient Attorney-General has so ruled. It is a physical impossibility for one man or even ten men in a county to take care of the indigent practice in a scientific manner and at the same time do the other practice that I have already enumerated, let alone do any real public health work. And if he fails, it is just too bad. Whatever medical practice is done, be it for charity or pay-patients, the best is none too good.

I remember about two years ago talking to a filling station man about health work in his county. He said, "It does not amount to much." I asked him why and he said, "Only a few nights ago, I phoned to the Health Officer to come to see a very sick man who lived about ten miles from the Health Department. The Health Officer said it was after office hours and that he could not come." The filling station man said: "A health department like that does not amount to much and we might just as well be without one." That health department by trying to give medical service to the indigent of the whole county, a physical impossibility, had gotten into water so deep and rough that there was no way out and the health deparment went on the "rocks."

I know of another county that had a very good health officer, but he gradually got to doing curative work and like a snow ball, every time it turns over, the larger it gets, and the larger it gets, the more territory it covers. Just so with his work. His practice began to extend to adjoining counties and grew over-night like Jonah's gourd. At first the citizens of the county and some of the doctors were well pleased. The citizens, because he was taking care of the practice of a lot of poor tenants, relieving the landlord of responsibility to some practicing physician. Some of the doctors felt relieved that this Health Officer took care of some of their indigent cases, but the Health Officer's practice got so large that he could not take care of one-tenth of it and it finally became a millstone around his neck and he had to resign in self-defense. The new Health Officer had a strenuous time for a while, but he had the backing of the doctors of the county, the County Board of Health, and the State Board of Health, and with the slogan, "Health work for every one and practice of medicine for no one," he weathered the storm and the Health Department was saved.

The doctors organized a free clinic, the city and county contributing a thousand dollars a year to this clinic and the Health Officer asked that this money not be put into the budget of the Health Department as was proposed. Of course, the jail and county home practice was on the hands of the Health Officer. Occasionally, there were federal prisoners in the jail—the Health Officer gave this practice to regular practitioners. The medical men in the county realized that the Health Department was trying to work with them, "A New Deal," if you please. They gave the Health Department practically 100% support. You know what that means in any county. If a county has thirty doctors and these thirty doctors pull together, they can put over any proposition that is for the good of the people of the county. In a county of 51,000 population with thirty doctors, each doctor has practically 1700 people who are with him and stand by him. A Health Department in a county where the doctors are not with it, has a mighty hard row to hoe. They do not have to be openly opposed, but just to keep hands off will give a Health Department dry rot.

Now getting back to the New Deal in Public Health. The New Deal should determine by code or otherwise what Public Health is and its limitations and the requirements might be something like this:

1st. Public Health is educational.

2nd. That no medical practice should be done by the Health Officer.

3rd. That no one connected with the Health Department should give serum or any form of curative medicine.

4th. The "New Deal" in Public Health should eliminate extremely incompetent midwives as rapidly as possible. The infant mortality rate in North Carolina is much higher than it should be. The State Board of Health is stressing this fact and trying to do something about it. Those needing obstetrical care should be taught how hazardous it is for both mother and child to dispense with the services of a competent physician. There are many children at Caswell Training School that would not be there except for the fact that they received birth injuries because some poor old ignorant midwife was the only one in the receiving line when they entered this world. This one phase of obstetrical incompetence is causing our citizens much sorrow and costing the state much money trying to take care of these bruised and broken children because someone did not know, because someone blundered—Health officers and Public Health Nurses could spend most profitably a larger portion of their time on this phase of public health—A New Deal for Mother and Babe.

5th. That the Health Officer by speeches, by articles in local papers—there is no other agent that will equal our newspapers in putting over a public health program. If you will make your news article attractive and readable, the newspapers are glad to print them. Whatever you do, as public health officials, do not overlook your newspapers—also by radio, by plays, by bulletins and pamphlets teach the public how to keep well.

6th. That the Health Officer be on the faculty of the high schools of the county, giving as many lectures as time would permit to the high school graduating classes of the county during each school year. This is a beginning place for reducing infant and maternal mortality.

7th. That clinics of all kinds—typhoid, diphtheria, smallpox, syphilis, prenatal, pre-school, tonsil and adenoid, dental, orthopedic, in fact, all medical service, except teaching—be placed in the hands of the doctors and dentists and for which services the doctor and dentists be paid a price reasonable and satisfactory to all concerned. The Health Department should put every ounce of its experience behind these clinics to make them a complete success from every point of view. It might be contended that unless that Health Officer does certain things, they will not be done, that is probably true at this time, but a program should be laid out that is sound in principal and work to that end no matter how long it takes, then when the goal is finally reached, there will be nothing to regret. Large syphilitic clinics have been conducted by Health Departments in this state and I understand syphilis is on the increase. I contend that the Health Department started at the wrong end. The head and the heart must be reached by the Health Department and let the doctor of curative medicine treat the actual cases. The New Deal in Public Health must

prevent syphilis by teaching, and the practicing physician can prevent the spread of syphilis by treatment.

8th. That all Health Officers be appointed by the State Health Officer. That they must have certain qualifications which should be determined by the State Board of Health.

9th. That Health Officers for city and county be elected for a term of four years.

10th. That Health Departments should have sufficient funds appropriated in keeping with the importance and usefulness of such a department, in order that sufficient personnel be employed to carry on this most important work in a worth-while way. Let the "New Deal" put health work in the vanguard of all city, county, state and federal departments. Let the "New Deal" so clearly define health work and its activities that there can be no doubt in the minds of the people and the doctors of curative medicine that health work is first, last and for all time, educational.

Secretary Ford: We will proceed now with the next paper and that is, "Results of Pitt County Tonsil and Adenoid Clinic," by Dr. McGeachy of Greenville, the discussion to be opened by Dr. Broadway.

Dr. R. S. McGeachy: To make this paper short I cut out everything I could so I cut out two words in the title, even, and just called it, "Pitt County Tonsil and Adenoid Clinic."

PITT COUNTY TONSIL AND ADENOID CLINIC

By Dr. R. S. McGeachy, Greenville, N. C.

In December, 1932, the county nurse and I visited the school in Grimesland to examine the children, and began with the first, or primary grade. Never since I have been in public health work have I seen so many children with real large tonsils. In the first grade, according to my system of grading, practically one in three either had diseased tonsils or their tonsils were so large as to need removing. The condition was so much worse than anything I had ever seen before that I decided to make a check on myself, so I requested our pediatrician and a specialist to go to the school and check the entire first grade and rate each child as they saw it, but due to a misunderstanding, the teacher had them examine only those children that I had checked from one to four plus. They both reported that they had never seen as large and as many acutely inflamed tonsils before. The pediatrician told me that he was actually afraid to tell the children to close their mouths for fear they would bite their tonsils. I asked these physicians to give me written statements of the condition as they saw it, and I then called a joint meeting of the Boards of Health and County Commissioners, and invited our welfare officer and a few prominent citizens to be present.

At this meeting I explained the condition we had found and tried to explain, with the aid of the specialist, that if our school examinations

were to amount to anything, we must have some means of correcting the defects found. After a free discussion and many questions by the members of the Board of Commissioners, the welfare officer said he would pay for corrections out of R. F. C. funds.

A few days later the welfare officer came to my office and we had a long talk about details, etc., and I saw that he was a little surprised when I told him I felt sure we would find at least four hundred children that really needed treatment, but being a dead game sport, and a man that I have always found four-square on everything, he told me to go ahead, so we planned for our first clinic in the Grimesland school, and the only restriction put on us by the welfare officer was that the welfare department be allowed to say whether or not those to be operated on were financially worthy cases.

We removed all desks from one of the class rooms and put up in it cots, beds, etc., furnished by the parents. A room adjoining the room used as a ward was cleaned up and used as operating room. I started an anesthetic early enough for operations to start about nine o'clock a.m., and the two specialists operated alternately, and while they were operating, I would be giving another anesthetic.

Our first clinic was held during the latter part of February, and we operated on 29 children and because it was our first clinic and not quite as well organized as the later ones, we operated all day and into the early hours of the night, but night work was so unsatisfactory that we all agreed to work harder and faster so as to get through before sundown. We operated on two days in the week, Tuesdays and Fridays, until we held about twenty clinics, and operated on 450 children.

Pitt County is quite a large county, and has thirteen consolidated schools outside of the town of Greenville. Chicod township is one of the largest townships in the county, and Grimesland school is located in the northern portion of the township, and Chicod school in the southern, about 9 miles apart. The two schools have very nearly the same enrollment and I naturally thought that the conditions in the two schools would be similar, and was consequently very much surprised to find at the Chicod school that there were very few children with even a one plus tonsil, and had to examine almost all the children up to high school grades to find twenty that needed operations. Why this difference is more than I can explain.

We were unusually fortunate in our work. I was very much surprised when we did not have the slightest difficulty in giving the anesthetics. I gave at least ninety per cent of them and never had to put my hand on the chest of but one child to stimulate respiration, and our operators were just about as fortunate, for outside of about five bleeders they never had any trouble. One boy about fifteen years of age had to be brought to the hospital some days after the operation because of hemorrhage.

Last fall I thought it would be interesting to know just what the school authorities thought of the results of our work, so I sent them this questionnaire:

TONSIL AND ADENOID CLINIC IN ..... SCHOOL

Date.....

Class 1.	Under 6	Males.....	Females.....	Total.....
Class 2.	6-10	Males.....	Females.....	Total.....
Class 3.	Over 10	Males.....	Females.....	Total.....

Opinion of teachers as to results obtained in 2nd and 3rd classes:

In Class 2:

In health..... Marked Improvement..... Slight Improvement.....
No change..... Total.....

In Class 3:

In health..... Marked Improvement..... Slight Improvement.....
No change..... Total.....

Is there any pronounced change in any case as to speech, etc. Answer yes or no..... If so, about how many cases?.....

Please state in a few words your opinion, as a school man, of the results obtained,

—and I will give a brief summary of their report. We received reports from 15 schools and in class 2 they report marked improvement in 101, slight improvement in 79, and no change in 29; in class 3, marked improvement in 26, slight improvement in 36, and no change in 17; making a total of marked improvement in 127, slight improvement in 115, and no change in 46, which indicates improvement in a large per cent of the cases operated on.

The following is what a few of the principals say about the clinic:

Grimesland—"Our clinic has been a success in every detail. The results indicated above bear out this statement, but these figures mean even more to those of us who are here to watch the children who have been so wonderfully helped. We are indebted to any and all people who had a part in the work and our only regret is that we could not treat all cases which came to us. We sincerely hope that in the near future we may include these clinics as a part of the budget of the State Health Department."—*Principal.*

Ayden—"I was not here when this clinic was held, but my investigations since I have been here lead me to believe that the clinic was highly successful, and should be repeated as soon as possible. There are still many cases very much in need of treatment."—*Principal.*

Bethel—"I regard the clinic a success. There seem to have been fewer colds. The people of the community are well pleased with the results."—*Principal.*

Belvoir—"We have been able to detect some fine results this year, and believe there will be more improvement in these same children next year." —*Principal.*

Falkland—"I was not associated with this school before the clinic was held, but judging from the accumulated opinions of the teachers who have taught these students, only slight improvement in the majority of the cases. In two cases, both girls above ten years, improvement has been marked, with breathing for one, with ability to concentrate and retain in school work for the other."

I tried to get in touch with the mothers but could not contact but a few, but judging from the opinions of those I did see or hear from, they seemed much more enthusiastic than the principals.

In conclusion I will state that Doctor James M. Parrott, our present very efficient State Health Officer, is responsible for the fact that tonsil and adenoid clinics are not exactly new to me, for he conducted such a clinic in Kinston while I was health officer in Lenoir County, and operated on from five to ten little children every Friday for months, and judging from the results obtained in his clinic and the one in Pitt County, I am thoroughly convinced that it is work that is well worthwhile.

DISCUSSION

Dr. R. E. Broadway (Tarboro): I feel like it would be quite difficult for me to discuss the President's Address and this paper, one of them having to do mostly with curative medicine and the other having nothing to do with it at all. (Laughter)

I think Dr. McGeachy has presented a splendid paper. He has done a splendid piece of work, to my mind, one of the best pieces of public health work that he has done since I have known him, and that is a pretty good while.

I think that he is extremely fortunate, too, in having a Welfare Office like he has and a Director of Federal Relief that will coöperate with him and help him out in this matter.

There are just a few things that I should like to comment on. One is the number of children in one school that he found with enlarged and infected tonsils, and the fact that in another nearby school the children were not so badly affected.

Several years ago when I was in one of the counties down on the coast we were doing malaria control work. That was our main work but at the same time while the nurses were out obtaining blood smears for malaria examinations I was examining the school children. I began when I first went into the county, and I found conditions that same way: that in one school—Dr. Knox over here is familiar with this; his good father was chairman of our Board of Commissioners down there, and this was a school right near his home—pretty nearly all of the children had very large tonsils, badly infected. We became somewhat alarmed and during the summer we did a whole lot of tonsil work. But I noticed when the exami-

nations were made for malaria that in the same sections where we had this large percentage of infected and over-sized tonsils the percentage of malaria was higher—and I didn't examine the blood smears, either. So I know it was done all right.

But we did operations there. We were either fortunate or unfortunate in having but two doctors in the county. Consequently, we didn't have any run-in with the medical profession. One of those men and myself did practically all of that work, and we operated on hundreds of children every year.

In the meantime while we were trying to determine why certain sections were so much more affected than others, we were doing malaria control work. We were getting results and reducing the incidence of malaria by the wholesale use of quinine. Because of the impossible situation, we didn't attempt to do much drainage.

Then the following year we had a campaign for hookworm and did an examination of practically all the children in the schools, and in the same schools where we found the tonsils so bad and the malaria so bad, we found hookworm infection.

That was treated also.

We wondered for a long time which was the cause and which the result; whether the tonsil condition was due to lowered resistance, or was it the cause of the lowered resistance. So we watched the condition over several years, while I was there. After treating for the malaria and hookworm, each year there was a decreasing number of children entering the schools, the first grade, with these large or badly infected tonsils.

So our conclusion was that the enlarged tonsils were secondary in a very large number of cases. In other sections and other schools where we did not find as much malaria infection and as much hookworm infection, we didn't find the number of children suffering with malnutrition and enlarged tonsils, and even the teeth were better, as Dr. Branch will probably be interested to know.

So I think that is the "why" of some schools being in worse condition than others.

I note one other thing here that Dr. McGeachy mentions: that one teacher wrote in telling what a great piece of work this was that he had carried on and expressing the hope that some time there would be an appropriation made for it to be handled through the budget of the State Health Department.

I still consider that I am very fortunate. We have more doctors where I am now, but they are very coöperative, and I have very little trouble with them. But when I attend these meetings or when I go about over the state and hear other health officers talking about what a hard time they are having with the medical profession because they object to so many things, it makes me think—and I am afraid this is coming—that unless there is some way to get the medical profession and the public health officers closer together in North Carolina, and get more peace and harmony

among them, there will be a budget, not by the State Department of Health but by the State Board of Education, and that this thing will be taken out of our hands and that somebody else will be given this work to do, rather than organized medicine.

Thank you. (Applause)

Dr. A. C. Bulla (Raleigh): I should like to ask Dr. McGeachy what classification was made by the Welfare Society, in aiding him in operating those 400 and some children—what classification was made as to ability to pay or not, and what was the final result.

Secretary Ford: In other words, you want to know how he got hold of the money?

Dr. Bulla: No, he told us that, but I want to know how much he paid for each individual operation and what classification was made of the children who paid these bills.

We talk about tonsils being found more prevalent in certain schools than in others. That is true of families, as well. We will find that in a certain family everyone will have large tonsils, practically. The environmental conditions are not exactly what they might be and we find that all the children have enlarged tonsils. And I think that same thing is true of a school.

So long as we have infected tonsils there isn't any reason why other children will not become infected from association with those infected children, drinking after them out of common drinking cups, and all the other things that children do in schoolrooms. There is nothing mysterious about that, why all children who have low resistance should have large, infected tonsils.

Secretary Ford: Is there anyone else who cares to discuss this paper?

Dr. D. G. Caldwell (Concord): I thought I would tell you a little about a tonsil clinic we had in Cabarrus County last year.

We have been very fortunate in getting hold of some of the state nurses who used to be with the State Clinic. Every year, in the last week of May or the first week of June, we put on this tonsil clinic. We pick out all the 4 plus and 3 plus tonsils and we hold the clinic. In four days, we do a hundred, twenty-five a day.

We have also been very fortunate in having the coöperation of the Welfare Officer. Last year we got $500 from the Welfare Officer and we supplemented this by getting money from some parents, in cases that we call semi-indigent cases. We charged them $10 apiece, the people that were able to pay. We paid the specialist $400 for doing 100 tonsil cases. That amounts to $4 a case. The incidental expenses, nursing, etc., amounted to about $100 more. It totaled about $700 for doing a hundred tonsil cases. Last year was the third year we put that clinic on. We started it in 1931.

Last year the Superintendent of the Jackson Training School came in and requested us to do a hundred of his boys. It was rather embarrassing to us. We didn't know what to do, but after taking it up with the Welfare Officer he agreed to pay for that out of Federal money. So we took on a hundred of the Training School boys, making a total of two hundred. We did some extra and in those few days did, in all, two hundred and twenty-nine.

Dr. Broadway mentioned the matter of correlating these two papers. I think they can be correlated all right because we have found in Cabarrus County that this tonsil clinic really has been very educational. Dr. Rankin, the local specialist there, reported to me that every summer there were more cases coming to the clinic. It seems to be of great educational value, as well as of immediate help to these cases that are treated, and the people are gaining confidence. It really is very good work in an educational way. It is more of a demonstration than otherwise.

We are planning to put on another clinic this year. It will be the fourth one.

Secretary Ford: Is there anyone else who wishes to discuss this paper? I wish we could hear from someone who could give us more of the checked-up results of clinics in the past, that is, checked-up from an educational point of view. Dr. McGeachy has said something about that but I wish someone else would discuss that question further. Has anyone any checked-up results that he would like to tell us about in connection with this tonsil education work?

Dr. John Symington (Carthage): I don't know whether I can answer this specific question, but this is the first Public Health meeting I have attended where I have felt we were on the right track regarding enlarged tonsils, because we are trying to get at the cause—and that is public health work.

I am sorry I missed the President's Address and most of the paper which was just presented by Dr. McGeachy, but local people have work to do before they can get to a meeting, and that is what happened to me this morning.

Regarding enlarged tonsils, there must be a cause, and we have heard here on the floor this morning that there are two or three causes: one, hookworm; two, malaria, and three, another infection. There are more causes, I am sure, but it is good to hear three mentioned.

I remember quite well in former meetings we heard nothing but, "Take the tonsils out," "Take the tonsils out," "Tonsillectomy," and "How will we arrange for clinics for taking the tonsils out?"

Well, that is all right but it is not all, I think, to remove the tonsils. We want to prevent enlarged tonsils and in order to prevent them we must know the cause of enlarged tonsils.

I think another cause of enlarged tonsils is under-nourishment, and of course when we have under-nourishment we have non-resistance. And so it goes.

So we will get, I think, to the cause of enlarged tonsils. I wanted a paper given on this subject. I asked for one to be given and they asked me to give it. I said, "I am not in a position yet to give it," but I think we are getting there from a public health point of view.

I think where you overwork any part of the body you get enlargement and then an infection sets in. When you combine that with lowered resistance, of course, you are going to get an enlargement of the tonsils and infection, and then you get a poison focus, which poisons the whole body.

We have watched the results of tonsillectomies in our county and they have been very good. We notice that children with enlarged 4 plus or 3 plus poisoned tonsils improve when these tonsils are taken out. But I think what we want to be more active about, as a public health body, is in getting at the cause and the prevention of enlarged tonsils. (Applause)

Dr. Charles C. Hubbard (Randolph): For several years I have had this idea in my mind: why on earth are there so many cases of enlarged tonsils and adenoids? What makes them? Are they contagious? Is there a special germ that causes them, or what? I don't know.

There is one family down our way that has had three operations for tonsils. Another has had four. There is a doctor's family in Randolph County that has had three operations already and there are two others in the family that ought to have operations done.

Is is caused by a special germ? Is it caused by poor food, or bad air?

Most of the cases that I have seen have lived in little tight sleeping quarters, not much good fresh air. How much has that to do with it? I am sure I don't know.

We have an old friend over in Randolph—you don't know him in your counties—Mr. Syphilis and Mr. Wasserman. What does he have to do with it?

I should like to have someone who knows something about it give us some idea about that. Why did you have so many enlarged tonsils in Pitt County? It is a proposition that is going to require our taking whole families living under the same conditions and making very thorough examinations, etc.

I have a little fellow now. He is an only child in this particular family and I have been urging them to have a tonsil operation done on him. It is like pulling teeth to get them to do it.

Children are suffering morally, mentally, physically and every other way because of these tonsil conditions and we should do something to remedy the situation. But my purpose in getting up was to ask some of you fellows who know to tell us what is the cause of these epidemics of enlarged tonsils.

Secretary Ford: If there is no one else who wishes to contribute to the discussion of this paper we will ask Dr. McGeachy to close. He has a number of questions to answer.

DR. MCGEACHY: Someone has asked about the pay for this work. Men, we have the best Welfare Officer there is in North Carolina, and I don't except any. When he decides a thing should be done, he goes ahead and does it. He paid every blessed cent of the cost of our tonsil and adenoid clinic, furnished us our ether, furnished us a nurse, and every single thing. It didn't cost my department or our county one red cent, and as I say we operated on 450 children. At first I am almost ashamed to tell you what we paid. We paid seven and a half dollars a child to be operated and paid a nurse for two days. She went on duty at eight o'clock in the morning and stayed on until the next morning and we paid her for two days for each clinic that we had. He furnished us with Squibb's ether. He furnished us with standard absorbent cotton and gauze for swabs, and everything else. It didn't cost us a cent.

If you all want a good tonsil and adenoid clinic, get "Katy," as we affectionately call him, as your Welfare Officer, and you will have an easy time as Health Officer. His initials are K. T. and his name Futtrell, but he is affectionately known in our county as Katy and he deserves it because he is a mighty good man.

I wish someone could follow it up. I wish we could inspect a county in which a malaria survey was made where no malarial infection was found and examine say 500 or 1,000 children or all the school children in that county and compare with a district in which there was a high malarial infection. That is the only way I see that we can get at that.

In these two schools in our county where there is such a marked difference there is no difference that I could see in the mode of living of the inhabitants of the respective school districts. They are practically identically the same. Grimesland has a population of about 100 or 150. Chicod is entirely rural. But they are both in the same township, Chicod township.

Why that difference occurs is honestly more than I can tell you. It was more marked, the difference in the Chicod School and the Grimesland School, than in any other two schools in the county. We thought at one time we would have to borrow some children from one of the other schools to take to the Chicod school. And you noticed that I said in the Chicod school we examined 50 pre-school children and found two with 4 plus tonsils, and six out of twenty-seven in the Grimesland School this year.

But I will say this: we have made Wassermann's in that county, as Dr. Hamilton can tell. In the last four years, we have taken about 15,000 Wassermanns in Pitt County, and I don't think it is any more infected than any other county in the state. It was four years ago. We have treated about 2,000 syphilitics.

What effect that is going to have in the next few years, I don't know.

All that was done with outside money, too, I would like to say. That didn't cost us anything. That was done by the Rosenwald Clinic. As I say, whether that is going to have any influence or not I don't know, but the percentage of positive Wassermann's among the colored people in the

two districts showed about the same results as we found among the 450 children we operated on for tonsils and adenoids. We operated on one colored child, the child of the janitor of the Grimesland school. The 450 are white children who live, in my opinion, just the same as all other children live in rural counties.

The Welfare Officer was entirely responsible for finding out whether or not they were financially able to pay for the work. We didn't question a single soul that came into the clinic. At first we admitted a few that paid, probably ten or fifteen, who paid from five dollars to seven and a half, and we became so disgusted with that that we cut it out and just took everybody as charity cases, and the Welfare Officer was responsible for it.

If I stay in Pitt County I am going to try to keep on studying the reason why there is such a marked difference in two adjacent communities.

Secretary Ford: The next paper is by Dr. Hamilton. We felt that maternal mortality was one of the livest questions (even though it is a mortality question) or the prevention of maternal mortality that we have to deal with at the present time in this state, and one of the most vital questions. This state has a black mark in infant and maternal mortality, and a great deal of work has been done on it this past winter by some of the physicians and public health men in the state, and we felt that Dr. Hamilton was the best qualified man to present that question and tell what has been done and give a prognosis as to the future. He has prepared a paper in conjunction with Dr. Milam and Dr. Stimpson.

We will now hear from Dr. Hamilton.

MATERNAL MORTALITY IN NORTH CAROLINA
(Second Report)

By John H. Hamilton, M.D., D. F. Milam, M.D., R. T. Stimpson, M.D.

From the Bureau of Vital Statistics, North Carolina State Board of Health, Raleigh, N. C.

In a preliminary report submitted last year, attention was called to the number of women who die in North Carolina each year while performing that most important function of bringing forth new life. The high maternal mortality rate for this state was noted. A report from the Bureau of the Census of the U. S. Department of Commerce, for the year 1931, showed that there were only seven states in the Union with higher maternal mortality rates than North Carolina. These are: Alabama, Arizona, Florida, Georgia, Louisiana, Nevada, South Carolina; and only five states: Alabama, Florida, Georgia, Louisiana and South Carolina with higher white rates than North Carolina. According to this report, there were only five states: Florida, Georgia, Oklahoma, South Carolina, and Tennessee with higher negro rates than North Carolina.

The preliminary report showed toxemias of pregnancy as the outstanding cause of death in this state, accounting for from thirty-one per cent to

forty per cent of the total each year for the period 1927 to 1932. A plan for securing additional information about this important problem was outlined.

For the year 1933 there have been filed with the Bureau of Vital Statistics five hundred five certificates giving as the cause of death some condition related to pregnancy. To the physician signing each death certificate, an inquiry form was sent with the request that additional information be supplied and returned. When the death certificate was not signed by a doctor, the form was sent to the midwife whose name appeared on the birth certificate. Of the five hundred five maternal deaths queried, three hundred thirty-four forms were returned with sufficient supplemental information to be of value. In this second report only a few of the outstanding facts contained in these records are discussed.

Color: The three hundred thirty-four reports returned were distributed as to color as follows:

White	209	62.6%
Colored	125	37.4%

A larger per cent of replies were returned from the white deaths queried than from the negro deaths. 58.4 per cent of the total maternal deaths in the state are white and 41.2 per cent colored.

TABLE NO. 1
THREE HUNDRED AND THIRTY-FOUR MATERNAL DEATHS

Total White		When First Seen	*Total*	*Trouble Previous Pregnancy*	*Previous Abortion*	*Ill when First seen*
Delivered by Physician	Referred by Physician or Own Patient	Fourth mo. Or before	44	12	9	26
		Fifth mo. Before 8th.	31	9	5	22
		Eighth mo. Before labor	21	9	3	15
		In labor	60	14	7	48
		After Delivery	25	4	4	19
		Sub-Total	181	48	28	130
	Referred by Midwife		6	2	1	4
Delivered by Midwife	Physician after Delivery		18	2	2	18
	No Physician		4			
	Sub-Total		22	2	2	18
Total			209	52	31	152

The returns from the queries were compiled on tally sheets. The summary for the white and colored is given in Tables No. 1 and No. 2. No attempt is made to give a detailed cross tabulation of all the information contained on the questionnaires. It is felt that such minute analysis would not be worthwhile until a larger group of replies have been accumulated.

TABLE NO. 1 (Cont'd.)

THREE HUNDRED AND THIRTY-FOUR MATERNAL DEATHS

Total Colored		When First Seen	*Total*	*Trouble Previous Pregnancy*	*Previous Abortion*	*Ill when First seen*
Delivered by Physician	Referred by Physician or Own Patient	Fourth mo. Or before	9	3	2	7
		Fifth mo. Before 8th	11	4	1	7
		Eighth mo. Before labor	11	1		10
		In labor	20	2	4	20
		After Delivery	14	1	3	12
		Sub-Total	65	11	10	56
	Referred by Midwife		25	4	1	21
Delivered by Midwife	Physician after Delivery		27	3	2	21
	No Physician		8	1	1	1
	Sub-Total		35	4	3	22
Total			125	19	14	99

TABLE NO. 2

CERTAIN PHYSICAL SIGNS, SYMPTOMS AND TREATMENT OF THE MATERNAL CASES

Total Maternal Deaths	334
Blood pressure of 140 or over	146
Syphilis	8
Albumen	163
Placenta praevia	12
Premature separation of placenta	15
Hemorrhage	100
In labor	42
After labor	58
Retained placenta	30
Forceps delivery	44
Other operation	79
Vaginal examination	191
Duration of labor 12 hours and over	70
Temperature over 100° F.	168
In labor	62
After labor	106
Perineal repair	23
Acute symptoms before labor	119
Delivery before death	263
Married	281

Of the two hundred nine white maternal deaths, one hundred eighty-seven, or 89.5% were delivered by physicians; of one hundred twenty-five colored, ninety or 72% were delivered by physicians. The per cent of total births delivered by physicians ordinarily runs around 85% of the whites and 26% of the colored.

It is significant that of the one hundred eighty-seven white women who were delivered by physicians, fifty had experienced trouble with previous pregnancies, twenty-eight had had previous abortions, and one hundred thirty were ill when first seen by the doctor who delivered them. Even of those who consulted their doctor before the end of the fourth month, twenty-six of the forty-four apparently sought aid primarily because of alarming symptoms. In other words, *only eighteen of the two hundred nine white women whose maternal experience ended disastrously, gave their doctor a fair chance to save them.* With the negro women the facts are much more gloomy. Of the one hundred twenty-five dying, only nine sought a doctor by the fourth month and seven of these nine were sick when first reporting to their physician. Our study as yet has no data with which to evaluate prenatal care statistically. Even without a control of this sort it would seem possible to draw up a serious indictment against lack of care. In this group of three hundred thirty-four unfortunate women, only twenty actually sought medical guidance early in their pregnancy and while still apparently in good health.

PUERPERAL ALBUMINURIA AND ECLAMPSIA

Puerperal albuminuria and eclampsia causes the largest number of deaths from maternal causes in North Carolina. This was also true for the group queried and for which replies were received. The maternal deaths by causes are given in Tables 3 and 4.

TABLE NO. 3
MATERNAL DEATHS BY RACE AND CAUSE

Cause of Death	*Total*	*Percent of Total*	*Race*	
			White	*Col.*
Abortion with septic conditions	24	7.2	17	7
Abortion without mention of septic conditions	14	4.2	9	5
Ectopic gestation	5	1.5	2	3
Other accidents of pregnancy	10	3.0	8	2
Puerperal hemorrhage	33	9.9	21	12
Puerperal septicemia	51	15.3	28	23
Puerperal albuminuria and eclampsia	114	34.1	70	44
Other toxemias of pregnancy	24	7.2	15	9
Puerperal phlegmasia alba dolens, embolus, sudden death	13	3.9	9	4
Other accidents of childbirth	42	12.6	26	16
Other and unspecified conditions of the puerperal state	4	1.2	4	0
All causes	334	100.0	209	125

Puerperal albuminuria and eclampsia accounted for one hundred fourteen of the three hundred thirty-four maternal deaths. Puerperal septicemia was in second place with 51, less than half the number due to puerperal albuminuria and eclampsia. If to the one hundred fourteen deaths due to puerperal albuminuria and eclampsia are added the twenty-four caused by other toxemias of pregnancy, the total is raised to one hundred thirty-eight or 41.3% of the total deaths. Ninety of the one hundred fourteen were ill when first seen and eighty-three of the one hundred fourteen showed albumin in the urine and eighty had a blood pressure of one hundred forty or over. In this group there were nineteen forceps deliveries.

Both races were affected to about the same proportion with this condition. Of the two hundred nine white maternal deaths, seventy of them, or 33.5%, were due to puerperal albuminuria and eclampsia and of the one hundred twenty-five negro maternal deaths, forty-four of this number or 35.2%, were chargeable to this condition. In this group forty-eight showed acute symptoms before labor.

There were forty of the seventy white patients, and nineteen of the twenty-five colored, making a total of fifty-nine that received hospital care and fifty-five that were attended at home. Of the fifty-nine receiving hospital care, fifty were ill before being seen by any physician; and of the hospital cases, thirty-one had acute symptoms before labor, indicating the lateness with which treatment was instituted. The best medical atten-

TABLE NO. 4

MATERNAL DEATHS BY CAUSE AND CERTAIN PHYSICAL SIGNS, SYMPTOMS AND TREATMENT

Cause of Death	Total	Ill when first seen	Blood Press. 140 & over	Albumine in urine	Hem. in labor	Hem. after labor	Forceps delivery	Other operations	Vag. Exam.	Temp. 100 & over		Acute symp. before labor	Retained placenta
										In Lab.	Aft. Del.		
Abortion with septic conditions	24	21	2	6	7	8	6	7	13	7	13	4	8
Abortion without mention of septic conditions	14	10	3	7	3	4	.....	5	6	6	1	11	3
Ectopic gestation	5	5	1	2	1	1	.....	1	2	.....	.....	2	.....
Other accidents of pregnancy	10	6	3	5	1	1	.....	2	7	1	3	4	.....
Puerperal hemorrhage	33	21	7	7	18	20	2	9	20	3	4	10	5
Puerperal septicemia	51	38	13	19	5	10	4	13	29	11	38	15	9
Puerperal albuminuria and eclampsia	114	90	80	83	3	6	19	28	69	18	26	48	.....
Other toxemias of Pregnancy	24	23	16	20	.....	3	3	4	12	6	8	12	.....
Puerperal phlegmasia alba dolens, embolus, sudden death	13	9	4	2	2	1	3	3	8	.....	.....	4	1
Other accidents of childbirth	42	27	18	13	3	6	6	7	24	9	12	10	4
Other and unspecified conditions of the puerperal state	4	2	.....	1	.....	.....	.....	1	1	.....	1	1	.....
All Causes	334	252	147	165	43	60	43	80	191	61	106	123	30

tion in hospitals cannot save the lives of these mothers when they do not come under this treatment until they are already dangerously ill.

Under the cause of death designated as "Other Toxemias of Pregnancy," there were twenty-four deaths. Under this cause is classified such conditions as auto-intoxication of pregnancy, pernicious vomiting, puerperal coma, toxemia of pregnancy, and like terms. Twenty-three of the twenty-four in this group were ill when first seen. Sixteen received hospital treatment.

PUERPERAL SEPTICEMIA

In many states, particularly in the north, puerperal septicemia causes the largest number of maternal deaths, while in North Carolina it holds second place, usually accounting for approximately half the number of deaths caused by puerperal albuminuria and eclampsia. Although puerperal septicemia ranks in second place in North Carolina and first in northern states, our rate exceeds theirs. For sake of comparison, the rates for three southern and for three northern states are tabulated below.

DEATH RATES FROM PUERBERAL SEPTICEMIA

1931

State	*Rate per 1,000 living births*
New York	1.2
Michigan	1.3
Massachusetts	1.4
North Carolina	1.6
Alabama	1.8
South Carolina	2.1

However, our large negro population is a factor in the high mortality from this condition. Among the total negro maternal deaths *the rate from puerperal septicemia is over two and one-half times what it is for the white rate.* Although this proportion did not hold in the group of cases under study the per cent of the total negro maternal deaths caused by puerperal septicemia was greater than the per cent among the whites. There were fifty-one deaths from puerperal septicemia in the total three hundred thirty-four maternal deaths. Twenty-eight of these were white and twenty-three negro. If the proportion among the white and colored had been the same there would have been thirty-two white and nineteen colored.

As would be expected midwives attended a much greater percentage of the negro deliveries than of the white deliveries in North Carolina. In 1932, the most recent year for which final figures are available, midwives attended 15.1% of the live white births, and 74.2% of the live colored births. Of the two hundred nine white and one hundred twenty-five negro cases studied in this present report, only 10.5% of the whites and 28% of the negroes were delivered by midwives, or of the total 17%. Midwives delivered 25.5% of the cases dying from puerperal septicemia, and an additional five cases were referred to physicians by midwives previous to actual delivery, bringing the total to 35.3% in which midwives were in

attendance. Thirty-eight of the fifty-one cases of puerperal septicemia were ill when first seen by the physician whose name appeared on the death certificate. However, a number of these were cases referred to him by another physician, especially is this true in cases receiving hospital care. There were twenty-two cases receiving hospital care and twenty-nine cared for at home. Nineteen of the twenty-nine rcceiving home treatment were ill when first seen by a physician and nineteen of the twenty-two hospital cases.

PRENATAL CARE

The evidence seems to indicate very definitely that for the reduction of maternal deaths in North Carolina we need reasonably adequate prenatal care for our expectant mothers. At the request of Dr. James M. Parrott, conferences with doctors and Dr. G. M. Cooper or representatives of the Division of Maternity and Infancy, were held in each section of the state and culminated in a meeting of seventeen practicing physicians in Raleigh, March 26, 1934. This group, after a comprehensive discussion of the problem, adopted a report defining the general principles of prenatal care as presented by their committee. This statement of principles gives every health worker a definite and concrete program for which to work. It is a challenge to every person interested in public health. Who can disagree with these principles?

"EVERY WOMAN SHOULD CONSULT A PHYSICIAN AS SOON AS SHE THINKS HERSELF PREGNANT

I. A. General Physical Examination to be Made Before the Fourth Month of Pregnancy.
   1. History of previous pregnancies and diseases.
   2. General examination.
      1. Foci of infection.
      2. Heart and lungs.
      3. Abdomen.
      4. Extremities.
   3. Blood examination, to include Wassermann in all cases, hemoglobin in all cases, blood count desirable.

   B. Pelvic Examination.
   1. Pelvic measurements to be taken before the fifth month.
   2. Vaginal examination to be made before the fifth month.

II. Routine Visits to Physicians.
   1. Should visit physician once a month for first five months and twice a month thereafter, at which time following examinations should be made:
      1. Urinalyses.
         Specific gravity.
         Albumen.
         Sugar.
         Microscopic examination desirable.
      2. Blood pressure determination.

3. Weight—Gain of over 24 lbs. not desirable.
   Any rapid gain to be looked upon with suspicion.
4. Estimation of height of uterus.
5. Determination of fetal heart sounds.
6. Diagnosis of presentation and position of fetus.

III. General Instructions.

1. Rest—One hour after mid-day meal, two hours desirable.
2. Exercise—Walk at least one mile daily.
3. Diet—General well-balanced nourishing diet with abundance of milk, vegetables, fruit and fruit juices.
4. Medication—No medicines (laxatives included) shall be taken except upon instructions of the physician.
5. Either supply or have patient write for various phamplets and literature issued by the State Board of Health and the Children's Bureau of the U. S. Department of Labor.

IV. Special Instructions.

Report at once to your physician if any of the following symptoms appear: Headache, dizziness, spots before the eyes, swelling of the feet and ankles or face, frequent or painful urination, bleeding, or abdominal pain.

POSTNATAL CARE

I. Physician should visit patient not later than third day after labor, at which time patient should be advised regarding:
   A. Nursing or feeding baby.
   B. Posture and exercises to prevent uterine displacements.
   C. When to get out of bed and resume usual activities.

II. Six weeks after delivery patient should report to physician for vaginal examination to determine and correct lacerations and displacements.

III. Baby should be examined at this time for weight and dietary corrections, unless under care of pediatrician.

Signed: Harry H. Johnson, Chairman,
J. Street Brewer,
Forest M. Houser,
Thos. Leslie Lee."

To the vast majority of the maternal disasters which occur in North Carolina, the medical profession has not had an opportunity to give reasonably adequate protection.

The marked prevalence of toxemias of pregnancy in this state demands a comprehensive investigation of the cause as well as the prevention and treatment of this condition.

Since our outstanding cause of maternal deaths is the toxemias of pregnancy, it is urgent that the women of the state receive adequate prenatal care.

If every prospective mother understood the protection which she needs during this most important period of her life, she would find some way to procure that service.

DISCUSSION

Dr. W. Z. Bradford (Charlotte): Mr. President, Ladies and Gentlemen: I think this report of Dr. Hamilton's of the utmost value in an intelligent approach towards improving the maternal mortality of the State of North Carolina because a statistical study of this nature takes the matter out of the category of mental abhorrence and brings it down to a certain definite, concrete entity of facts.

It shows, in the first place, that similar surveys have been made in other parts of the country, as has been done in New York City by the New York Academy of Medicine. The maternal deaths in New York City were studied over a period of a year, and certain conclusions reached. Studies of that nature do not apply to the problem in the state of North Carolina because here we are dealing with a large rural area, with a tremendous number of patients who are unable to receive medical attention easily, and this report I think definitely shows that the greatest maternal need in the state of North Carolina today is early recognition of the toxemias of pregnancy, with adequate hospitalization and treatment of those cases.

This is right in line with a recent investigation that we made at the suggestion of Dr. Rankin, when we analyzed the maternal mortality from a group of small hospitals of the state operating under the Duke Endowment. Those hospitals are confronted with a frightful maternal mortality because they are the recipients of a number of extreme cases, and in studying those maternity rates in a few hospitals—such as Dr. Crawford's hospital at Rutherfordton, Grace Hospital at Banner Elk, Baker Sanatorium at Lumberton, and others—we found that eclampsia was the cause of 57 per cent of the hospital deaths in these small hospitals in the state. Placenta praevia was responsible for 15 per cent of the deaths and puerperal sepsis which ranks so high in the maternal mortality in the Northern states was accountable for only 7.5 per cent of the deaths in these hospitals.

So the problem becomes one for every practitioner in the state and one for the small hospitals to go into to protect themselves, but of course it is a problem for the public health officer as well because it is a matter of public health to see that these women do obtain prenatal care and that these conditions are recognized early and treated during such period of their pregnancies as may materially reduce the mortality.

There are several interesting features to Dr. Hamilton's report that I should like to mention. The first is with regard to the midwife. It is interesting to note that only 35 per cent of the puerperal sepsis mortalities which he reported were delivered by midwives in the state of North Carolina; in 1932, midwives delivered approximately 33.5 per cent of the births that took place.

That indicates that the midwives' puerperal sepsis mortality was proportionate to the percentage of cases they delivered and hence the inci-

dence of sepsis in their hands was not much higher than the incidence of sepsis in the hands of the physicians and in the hands of the hospitals.

I think that all these studies, the study that Dr. Hamilton has made, and the studies made in the Northern cities, indicate that the midwife is comparatively safe provided she has normal cases turned over to her to handle, and the problem is not elimination of the midwife because in such a state as this the midwife will always I believe have to handle a great bulk of the deliveries, but it is turning over to her cases that are safe in her hands, and that of course is a matter of prenatal care and preventive medicine.

I cannot agree with Dr. Hamilton in his elimination of us practicing physicians entirely from all responsibility in this matter, when he states that only 20 of these 334 deaths could have been prevented by the physician. We note in this report that he presents the tremendous incidence of operative deliveries, that out of the 334 deaths reported, 153 of these cases had some form of operative delivery, that 80 of the 334 were delivered by means other than forceps, indicating the high incidence of caesarean sections and versions; that 25 per cent of the sepsis deaths had operative deliveries other than forceps; that 25 per cent of the eclampsia deaths were delivered operatively, not including forceps deliveries.

This is in line with our other study of caesarian section mortality in the state, when we found that in the small Duke Hospitals in the two Carolinas the caesarian section mortality was 10.7 per cent, that in all the Negro hospitals in the state in 1931 the caesarian section mortality was 40 per cent. It is astounding to note that two out of every five Negro women subjected to caesarian in 1931 died.

That is indicative again of the fact that these cases reach the hospital only when the conditions are extreme and also indicates that the mortality from operative intervention is unusually high, but we must have an analysis of the cases prenatal and while in the hand of the midwife to form a reasonably accurate endpoint. We notice another thing: that of the 334 cases, 100 had hemorrhage associated with them. It would have been interesting to find out how many of those 100 were transfused. We know only too well that it is extremely difficult, especially in our smaller hospitals—we see this in Charlotte in our Negro hospital which is a small institution—to obtain blood transfusions, and from the hospital standpoint the maternal mortality rate in these cases will not be lowered until ready methods are available for giving emergency blood transfusions to the hemorrhage case. This is more than the doctor's angle than from the public health angle, but it is preventing deaths.

We have had an opportunity in Charlotte during the past two years, Dr. Nance and myself, to work out a maternity clinic there on a rather large scale—a large scale I would say for this section of the country. Going over our own figures we noted that in the last twenty-one months through this clinic we have delivered about 925 patients, with five maternal deaths, a mortality rate that is rather high. On analyzing these five deaths

we found that our own clinic set up was directly responsible for one and partially responsible perhaps for another; that three of them were definitely due to failure to take advantage of our clinic facilities. We are working in a compact community, a community that can be called metropolitan from the standpoint of North Carolina, where the opportunity to give prenatal care to these patients is unusually good. We have a setup there with a large number of visiting nurses. We have had two nurses given to us by the state and we are working with the doctors in the community, and have many sources from which these pregnant patients may be sent into the clinic. Yet even there, with a compact settlement of people, we find that only approximately 75 per cent of the cases that we take care of take advantage of prenatal care, even though the nurses try to send them in. One-fourth of our cases will not take advantage of this facility.

So in trying to improve the mortality rate it is quite apparent that the first thing to do is to reach this one-third of the obstetrical population which sees no doctor at any time, and yet even when methods are made available to them they do not accept them; we are dealing with a submerged strata of society which it is extremely difficult to persuade to use the advantage of these facilities that are offered to them.

One of our first deaths that we had last year was a woman we saw when she was two and a half months pregnant and at that time she was all right. Instead of returning for her next visit in three weeks, the next time we saw her was seven months later when she was acutely decompensated, and she died a short time after we found her.

The education of this class of society to take advantage of prenatal clinics, of course, is a matter that cannot be done overnight, but only with the passing of generations, but I do think the report does bring the burden of proof down to the public health authorities. From the standpoint of preventive medicine, namely, prenatal care, the public health organizations of the state working in conjunction with the hospitals in the community should attempt to set up prenatal clinics or make the hospital a maternity center to which the indigent patient, and the patient who is going to be delivered by a midwife, may be referred eventually, and should attempt to put through certain laws requiring that she be examined, because it is only when there is a certain amount of compulsion brought in on this class of society that the mortality rate will be reduced.

However, I think the report is of tremendous value from the standpoint of reducing the death rate. (Applause)

Secretary Roman: Can we hear from someone else now? We have about five minutes left for general discussion of this paper.

Dr. J. A. Morris (Oxford): What I am about to say is not said in a spirit of criticism of the medical profession but it is a suggestion that emanates from doctors in our own medical society. This thing was narrowed down, in discussion, to a matter of prenatal education. The doctor should change his psychology in relation to these patients and force his

own opinion on them: that the care of the prenatal case is a part of obstetrics. He should refuse absolutely to treat an obstetrical patient unless he can do the whole thing. That is every doctor should coöperate, and let it be known that the fore-care is part of the end-care, and a doctor should refuse to do the end-care unless he can do the fore-care.

We do that in a lot of things. The doctors in our county, for instance, will not treat diphtheria unless they can use the serum. We still have some backwoods people in our county that do not want to use the antitoxin for diphtheria. In those cases our doctors just pick up their bags and walk out and say, "All right, get whom you will."

The people have learned that and nobody now objects to antitoxin.

Whenever the doctor gets that psychology within himself he will produce a similar psychology in his patient: that it does not pay to reserve to herself the right to say when this treatment shall begin.

If you will do that I believe that you will effectively educate when nobody else can because the final treatment is in your hands.

Secretary Ford: Is there someone else who wishes to discuss this paper?

Dr. R. S. McGeachy (Greenville): Mr. President, on looking over the vital statistics report the other day I noticed that in my county during the time that it had the service of a maternity service and a nurse the infant mortality was reduced from 135 down to 38. What caused that is more than I can tell but it could not have been just a coincidence; there must have been some reason for it.

I think that we ought to go back to the Sheppard-Towner Bill, and I think that this Society should go on record petitioning the representatives from North Carolina to provide some means for protecting the mothers and infants in our state. (Applause)

I am ashamed to say that while North Carolina stands very high in the infant mortality rate, my county stands highest in the infant death rate for 1932, and I am not willing to let a condition like that go unnoticed without making some effort to correct it.

I have talked myself almost out of a job in my county just on that and tuberculosis, the rates of which in my county are both very high, and I think that we ought to do something.

Dr. J. M. Northington (Charlotte): The statistics that have been compiled, the comparative statistics, comparing the mortality records in this country with those of countries abroad, have a fallacy which should be emphasized, several of them as a matter of fact, which would, if properly understood, place our records in a far more favorable light.

I am reliably informed that a great many of the foreign records classify only a baptized child as a live birth, while in this country one gasp is sufficient to be recorded as a live birth. It can be readily seen that there would be great disparity in records compiled in that way.

In a great many countries a case of puerperal infection is recorded as an infection and not as death as a result of labor. Also, operative deaths in delivery are not charged as deaths due to maternity but as surgical deaths.

When those things are properly understood the results will look very different from the way they look at the present time. The comparative figures should all be based on records that are compiled in the same way.

Coming down to the comparison with other states, presumably the records in most all our states are compiled in the same way and even though we have only seven states with a higher maternal mortality rate I should like to interpose that any one death in labor, or otherwise, is a needless death and is a matter of regret and reproach. This is certainly not said with any idea that we shouldn't improve the service that is rendered these women but in comparison with even these states of New York, Michigan, and Massachusetts there is not a wide disparity.

Then there is another thing I should like to say. This is to be taken broadly, there are exceptions to it, but I believe the emphasis being placed on pregnancy and delivery as a pathological process rather than a physiological process is responsible for a number of our deaths. I believe it is a good working rule to consider pregnancy a pathological process; because in practically every case of pregnancy certain pathological conditions develop, but we should regard delivery as a physiological process for this reason: that if we regard it as a pathological process the next thing immediately in the line of reasoning is, We must do something about it, and I think entirely too much is done. That is a broad working rule: that delivery should be regarded as a physiological process. And the rule should be to make the woman comfortable and let her bear her child. (Applause)

Secretary Ford: This question of statistics is a very comforting thing to someone like Dr. McGeachy who when he has the highest rate can look at the records and see that some counties have practically no infant deaths at all, their death rates are the lowest in the state, but on checking up he will find that those counties as a rule have no health departments. In some places I feel as though some of the children are just planted, without any death certificates at all. So these records must be taken with a great deal of salt.

The next paper will give us some of the immediate results and findings of this mouth health survey that the dentists have so philanthropically put on throughout the state. I see the dentists are very clannish—they are all sitting here in a row. We have asked Dr. Fleming, of Raleigh, who is a practicing dentist, not a public health man, to present this paper, and Dr. Branch to open the discussion.

Dr. Fleming! (Applause)

THE MOUTH HEALTH SURVEY IN NORTH CAROLINA BY THE DENTAL PROFESSION AND ITS POSSIBILITIES AS A HEALTH MEASURE

By J. Martin Fleming, D.D.S., Raleigh

Sporadic attempts have been made from time to time in different sections of the United States, and in our own state, to learn of the mouth health conditions in the average school child. Most of these attempts have been made in a rather inaccurate way and in rather proscribed areas in widely separated sections of the country—inaccurate because made frequently by untrained persons, teachers, welfare workers and nurses, rather than by those trained to the work. Consequently it was done according to no standard of examination, with no uniformity of questions, and the results could not possibly be tabulated into a report of general conditions which might be of service either now or in the future.

Some of the best work of these early examinations was done under the supervision of Dr. Jones of Bridgeport, Connecticut. He went into the matter in a thorough fashion, though his findings were not always applicable to other sections of the country.

But in 1932, at a meeting of the American Dental Association in Buffalo, New York, a general plan was formulated for a nation-wide survey to be conducted by dentists, limiting these to those dentists who are members of the organized state societies. There was no effort in that to bar any man from participation in the work, but, if we undertook to use men over whom we had no control, our results would have been far from uniform. It was difficult to contact all our own membership and it would have been well nigh impossible to reach men who were not members.

In order to give our undertaking the necessary background and official recognition, it was submitted to the Surgeon General's office and in a meeting of public health authorities, both state and national, held in Washington in May, 1933, the following resolution was proposed and adopted: "The Resolutions Committee recommends the approval of the report of the special committee of this conference, in coöperation with the Surgeon General's office, and the American Dental Association in making a dental health survey. That the committee approves the dental health survey as proposed by the Public Health Service and that it coöperate with the American Dental Association and the Public Health Service to the fullest extent in carrying out the study."

In this way both the Health Department at Washington and the various State Health Departments were committed to its aid, and, in this state, they have left no stone unturned to render every aid possible.

It has been both my privilege and good fortune to have known, more or less intimately, every secretary of the North Carolina State Board of Health since its early organization, but we have never known one with so sympathetic an understanding of our problems, or one capable of giving

such expert help in solving them, as has Dr. Parrott, the present secretary. And when I say that, I am not unmindful of nor ungrateful for the pioneer work of Dr. Cooper. He too has rendered the dental profession much service in North Carolina.

Of course, the work itself was under the general supervision of Dr. E. A. Branch. His was a double duty; first, as the head of the Oral Hygiene Department of the State Board of Health, and, second, as the President of the North Carolina Dental Society. How well he has done that work is now a matter of history.

Many difficulties presented themselves—many good men said it could not be done, but it was done. Dr. Branch never wavered in his enthusiasm for the survey and he transmitted his zeal to all with whom he came in contact. The consequence was that he had the members of the North Carolina Dental Society so enthused that, by the time set apart for the work, everyone was ready and eager to help.

The North Carolina Dental Society is divided into five component district societies. A supervisor was appointed for each district and then one man was made supervisor of each county in each district. The county supervisor thus became responsible for the survey in his own county. District and county meetings were held and every phase of the work was discussed in detail. In the larger counties, containing the larger cities and towns, it was not difficult to appoint one dentist to each school in the county, while in many counties they worked in pairs. In smaller counties where there were fewer dentists the problem was greater. However, all dentists agreed to give two full days to the survey and practically every dental office in North Carolina was closed those two days, February 20th and 22nd. Certainly the offices of the members of the North Carolina Dental Society were closed. They coöperated almost to a man in making the survey a success.

So great was the enthusiasm and consequent publicity among the school authorities and Parent Teacher Associations that we had many requests from dentists who have never allied themselves with the State Dental Society, that they might join the society and thus be allowed a part in the great work. None was refused. Many of them did join and rendered good service, while many who did not join in the work, because they were not members of the society and consequently could not take part, are finding it difficult to explain why they did not.

In many instances dentists gave more than their allotted two days to the work in order that they might go back to a school and finish up work that, for one cause or another, could not be completed in the given time. Many children were abent from school on the first day of the survey, February 20th, on account of the extreme cold that day, but they were back on the 22nd, and, by making a second trip, just about all were examined.

In making the survey a simple effort was made to obtain a cross-section of the condition of the mouths of the public school children of the whole

nation. All could not possibly be included, but hundreds of thousands, even millions, were examined.

It is going to make interesting reading when all results are tabulated and made public. It will be interesting to know in which state the best teeth are found, and in which county of a state.

In North Carolina we have examined between two and three hundred thousand public school children. It is going to be interesting to know where the best teeth are found in this state and why. Necessarily an examination made in bulk, so to speak, could not possibly be perfect and we knew that to start with. It was, as the name implied, merely a survey—not really an accurate examination, but covering enough ground for us to know general mouth conditions, not only that the parents might be notified, but that we as dentists might have a more accurate knowledge of true conditions.

We have always known that bad teeth and poor scholarship run hand in hand, and so the schools were anxious to coöperate with us that this might be corrected. The pride of the school is in the high attainment of the scholarship of its pupils and anything which lowers that scholarship is something that needs correcting. It has been said that no part of the human system so readily reveals the lowering of vitality as the lesions of the mouth. The teeth suffer first. The old time country doctor was not so far wrong when he first looked into the mouth. His ability to read the signs there found had much to do with his successful diagnosis. The marks of disease are there, and they leave a record on the teeth probably more marked than on the mucous membranes of the mouth.

But that is aside from the subject—we were talking about the coöperation of the schools in putting across the survey. If there ever was 100% coöperating in any undertaking we certainly had it from the school people, from Dr. A. T. Allen, State Superintendent of Public Instruction to the humblest teacher in the schools.

The principals of all schools were notified by their superintendent of schools, both in the city and county, as to when the survey would take place and were asked to give every help possible in seeing that it was accomplished with the least possible friction. The dentists in turn were urged to complete the work with as little interruption of school activities as possible. The blanks were sent out by Dr. Branch, and, through the district and county organizations, went to every dentist in the state who was entitled to participate in the survey. Each dentist in turn saw that the blanks went to the principal of the individual school for which that dentist was responsible. The principal in turn distributed the blanks to his teachers, one for each child enrolled, and the teacher filled in the name of the child, its age, sex, color, grade, etc., also the name and address of the parents of the child. The teachers also made a classification of the children according to the probable ability of the parents to have the necessary dental work done, dividing them into three general classes—A, B and C. The "A" class comprised those whose parents were amply able to pay,

the "B" class those fairly able, and the "C" class those whose parents were unable to pay. The dentists had nothing whatever to do with this classification, nor was it difficult for the teachers to make it. It was possibly simply an enlargement or broadening of work they had already done for the Parent Teachers Association in their praiseworthy endeavor to provide free lunches for those children who might possibly be undernourished from one cause or another. In this classification it was found that the number in each class was practically the same. Certainly the "A" class and the "C" class, while the "B" class was slightly larger—that is those who probably could pay if they would.

When it comes to the matter of statistics as gathered in the survey I can only speak of Wake County—my own county—but what is true of one average county is probably an average of the whole state. Out of 12,629 white children examined 2,286 were found needing no dental attention —an average of 18% good teeth for the white children of the county. But there was a great difference between those of the City of Raleigh and of the county. In the city the percentage of good teeth was only 10% as against 28% in the county.

Other significant facts were found relative to the Negro children. It was not possible to make as complete survey of the mouths of the colored children, but the four colored dentists of the city of Raleigh also gave two days of their time to the survey and made a valuable contribution to the work. They examined 2,583 colored children in the Raleigh schools and found the percentage of good teeth to be 31% as against the 10% good teeth of white children. Their percentage of good teeth would also have been greater in the county than in town had we been able to examine the colored country children as well.

The percentage of white children in Wake County who have never visited a dentist was about 37%, while the percentage of colored children who had never visited a dental office was as high as 86%. Very few had ever been in a dental office. That would seem to bear out the statement often heard by every dentist how grandpa lived to be 97 years old and never lost a tooth and never had one filled—we have all heard it—and we wonder how long grandpa might have lived had he had his teeth attended to. But, it is a significant fact that the teeth of colored people, as a whole, are much better than the teeth of white people, until they begin to eat the diet of our so-called higher civilization. When, however, their teeth do begin to fail, they go rapidly, due no doubt to the careless cleaning of their mouths.

Our survey too made a record of six-year molars missing. In Wake County nearly a thousand—multiply that by the number of counties, 100—and see the enormity of that one item—the most important tooth in the mouth! It is almost tragic. The number of fillings needed was much greater than the number of children examined in spite of the fact that so many needed no dental attention.

A record was also made of those with diseased gums, the number needing orthodontic treatment, the number having mottled enamel, and the number who had been grade repeaters. No startling facts were revealed in these except as to the number of each, especially grade repeaters, but a more careful study of all statistics will be required before we can definitely give a percentage connecting poor teeth with grade repeating, though we know they are closely associated. This comes from the fact that our statistics are not trustworthy in this one item alone because so many schools, especially in the country, have recently been consolidated and these consolidated schools contain so many children who have been handicapped by short term schools before consolidation was effected, that it is not fair to the school nor to the child to list them as repeaters under such circumstances. This applies equally as well to the schools of the cities. It is true the city schools have been running longer since consolidation, but they too are handicapped by the fact that many country children are moving to town from year to year and their record of short school terms and consequent repeating of grades follows them to town and becomes a part of their school record there. The eight months school law should correct much of this. However, if you will eliminate these causes of repeating the grades, and come down to the actual facts, you will readily find that the best teeth and the best scholarship go hand in hand. It is necessarily so—you can not expect a child with an aching tooth to compete with one who is free of that handicap. We have statistics from larger cities where whole rooms of repeaters of a single grade could be brought together and segregated, their mouths put in order, and they were changed from 100% repeaters to 100% perfect grade advancement. This should be and is conclusive evidence of cause and effect. You might say this matter of grade repeating is for the schools themselves to handle, but there can be no conflict of interest where the health and welfare of a little child is at stake. It is a field worthy of the combined endeavors of all of us.

Our state was well organized for the work. The dental profession in North Carolina has been notably "health-wise" for some years and it has come through affiliation with the health organizations of the state. We were among the first states to have a dentist on its State Board of Health, and, so far as I know, we are the only state that has a law placing a dentist on each County Board of Health. This, of itself, has put the dental profession in line to know and foster general health work as we have never known and fostered it before. Formerly we saw, with few exceptions, through dental glasses only, but a more intimate knowledge of the scope of the health work, as learned through the state and county health organizations, has given us, as a profession, a clearer insight into our duty as real health promoters and has given us an added zeal and interest in the work of the survey.

So much for a short history of the survey and some of the facts as learned from a study of the statistics.

When it comes to the possibilities that might accrue from the survey as a health measure, they are many and varied, but they can only follow through a thorough education of the public to the enormity of the work needed to be done, and this must, in some way, be carried into the homes themselves—into all homes from the highest to the lowest.

The press is anxious for the information and will give it wide publicity, but the information must go into the home. It makes very little impression on one to read of the great need of dental care in a newspaper, but it means a whole lot to get a postal directed to *me* saying *my* child needs attention. That puts a different phase on it—and so we plan to have at least a postal card go into every home telling of the conditions found in the mouths of the children of that home—calling the children by name. The postal cards themselves would cost from two to three thousand dollars, not to mention printing and directing, but it is worth many times that sum if we can get the information into the homes.

A great majority of parents will do anything possible for the health of a child when their attention is called to the needs of that child. A parent will make every sacrifice of himself or herself to see that a child's needs are attended to, even to neglecting themselves. We have had ample proof of this will to guard the health of a little child in the pre-school clinics which are conducted in many counties over the state each year. The little felllows are brought in for physical examination before entering school in the fall. Their eyes, ears, throats, lungs, hearts, posture, and teeth are all examined—any physical defect is noted—and the attention of the mother is called to it. In Wake County we have a dentist present and we try to instruct parents as to the dental needs of a child—cleanliness of the mouth, the necessary diet and the habits. They listen with the greatest interest and we thus know that the parents care. So well has this coöperation of parents been carried out in Wake County that the county all-time dentist said, a few days ago, that he saw the greatest improvement in the mouths of the 1st, 2nd, and 3rd grade pupils in the last few years and he attributed it to the information and instruction given the mothers by the dentists in the pre-school clinics. And so you see the work of informing the parents is bearing fruit. They will coöperate as we can get the information to them, whether it be for a little child or a larger one. And so we are trying by every possible means to educate the parents. The schools are coöperating—they realize its importance.

The Parent-Teacher organizations will be of the greatest help. I wonder sometimes if we realize the importance of that organization. Probably no recent organization of any activity has done so much for child life. It is said the time to begin dental work is with the grand mother, and so we are laying our plans for generations ahead, but hoping to do some good by educating the present generation. The notice we will send will not suggest to the family dentist what he should do or what needs to be done, but we will simply notify the parent about as folllows: "Dear Mrs. Blank—a classroom inspection of Mary's mouth by a member of the

North Carolina Dental Society indicates the need of dental attention. May we suggest that you consult your regular dentist for a more complete examination. Signed, "Division of Oral Hygiene—North Carolina State Board of Health." The notice rather avoids suggesting anything—it avoids even claiming a thorough examination. It takes none of the initiative away from one's own dentist. The whole procedure is left in his hands. We are merely trying to get the parent interested. If the survey does that the battle is more than half won. Of course, the extent of the work needed is going to be a surprise to most parents. Some are not going to be financially able to have the work done. Those who are able to pay should certainly not ask help from the profession, but for the indigent, as much as possibly could be done should be done, both through the county and school dentists, the indigent always having precedence. When all that is done it will hardly scratch the surface of what is needed.

It probably would be a calamity to leave the survey without some effort of the dental profession to follow up and improve conditions for those unable to pay, but the greatest of care must be exercised in choosing some satisfactory plan for that work. The plan must not take the form of cheap dentistry at so much per regardless of per. That soon leads to panel dentistry and is destructive of the best that is in men. It destroys initiative—it destroys that element of competition which urges one to do his work just a little better than his competitor, which rivalry is so essential to the best that is within us. It fosters carelessness in one's work. It tends to hasten us in doing the greatest possible amount of work in the least possible time; it encourages cheap work; it leads to mediocrity which is a curse of anything it touches. Instead of educating the public to be satisfied with only the best, you are really encouraging them to be satisfied with the mediocre. The best minds, both in this state and others, are now trying to work out some feasible plan which will not work too much hardship on the individual dentist who will be trying conscientiously to correct a condition, which, if neglected must lead to a decided lowering of disease resistance, because it is a well known fact that unhealthy mouths offer the least resistance to diseases, especially the communicable diseases.

When some plan has been worked out satisfactorily and the work done according to that plan, then can the dental profession point with pride to a work well done and claim a contribution second to none so far offered as a general health measure.

However, I have gone long enough. If at times I have seemed to go far afield from my chosen subject, please overlook it and attribute it to my zeal for a cause I love—the health of a little child.

DISCUSSION

Dr. Ernest A. Branch (Raleigh): Mr. President, Ladies and Gentlemen: I am sure I have enjoyed the resume of the mouth health survey by Dr. Fleming and the conditions he enumerated as being found in Wake County. While we don't have a complete report yet we do have sufficient

report to know that that county is going to be a pretty good index to the other counties. However, in some few we find the need greater, that is, so far as mouth health education is concerned. In some counties where we have not had an extensive educational program such as we have had in some of the other counties that I could mention, we find, in some schools, as many as 100 per cent of the children have never been in a dental office.

If there is a definite relation between an unclean mouth and systemic disease (and we believe there is) or if we are trying to reduce communicable diseases and degenerative diseases, and if we believe those diseases are due to lowered resistance (and we agree on that) then we are brought right back to our first position, that of public health, whose sole purpose and activity is one of teaching prevention.

The mouth health programs as conducted in the state at this particular time have for their sole purpose the educational side and we want to, if there is still lingering in the minds of any a feeling or a belief that we are in the field of correction, dispel that idea.

As you know, we no longer speak of our activity as a clinic but as a mouth health education program. It is true we do make some corrections but we make those corrections solely on account of the visual instruction possibilities. There is no learning at all in our school systems that compares with the teaching through visual methods, and the visual method that we use is a correction but it is made for the child who is indigent according to the teacher's classification. According to that arrangement no dentist has any kick whatsoever because we are not working for or on any dentist's patient. That is no man's land. But this particular child that we work on though he be indigent today we do not have a right nor would I dare to say, that he will be indigent tomorrow, for some day he will become self-supporting, and you and I both know that if at this particular time we can teach him the value of a clean, healthy mouth, when he does become self-supporting some dentist will have a potential dental patient for the rest of his life.

That is the foundation on which we are trying to build and carry on, in the mouth health education programs in this particular division of our public health activity.

Mr. President, I am going to beg that you excuse me from discussing this paper further and extend the courtesies of the floor to Dr. Sinclair of Asheville who is here with us and who is to appear on the program tomorrow. Dr. Sinclair is one of the best know dentists in the state, in the South, and is in fact nationally known, and with your permission I will extend the courtesy of the floor to Dr. Sinclair. I don't know if he will have anything to say but I trust he will (Applause)

Secretary Ford: Dr. Sinclair, we will be glad to hear from you.

Dr. J. A. Sinclair (Asheville): Mr. Chairman, I am glad to be down here with you gentlemen and especially to have had the opportunity of listening to Dr. Fleming's paper. He and Dr. Branch have had their

hearts in this work for a number of years and they have done some wonderful work.

I was not enthusiastic over this survey, as Dr. Branch knows. I didn't think it could be done and I didn't think it would amount to anything perhaps after we made the survey. But I was surprised after I went through it.

First I will say that I am perhaps the only dentist in the South or in the country who does not work for children, unless it is a case of some operation, osteomyelitis, or something like that, or unless it is a charity case. Those are the only conditions under which I will do work on a child.

I didn't think that the survey could be made the way they had it outlined.

It has been a routine practice in my office for a long time in examining the mouth never to look at the teeth first. We are afraid we will overlook something. So we always look at the mucous membrance of the mouth, the lips, the tonsils, and everything else that we can see before we look at the teeth. Then we are sure that we haven't overlooked anything.

There is one thing that surprised me—really, it didn't surprise me, though. I always examine the tonsils of every patient that comes to my chair and in examining these youngsters I found, as some of you gentlemen have described today, that the tonsils looked as though if they closed their mouths they would choke to death. Practically every case that I examined that had defective teeth had defective tonsils. A great many of them had hemorrhagic manifestations that perhaps were due to some vitamin upset. A great many of these patients with extremely bad teeth, irregular teeth, presented a condition that appeared to be an endocrine disturbance; that is, they had an extremely large tongue or a thick tongue and the saliva, when they opened the mouth, dripped out of it, perhaps not to an extent that the other manifestations were noticeable but nevertheless there was endocrine disturbance there somewhere.

I think that this survey, if it is tabulated correctly and brought up all over the United States, is going to be a wonderful thing. If some other condition doesn't creep into it—perhaps it may, in certain sections I know that it has—to cause some of the members of our dental profession to take advantage of this survey (and I hope that will be straightened out, because they are all good men, and I think that can all be straightened out through the influence of such men as Dr. Branch and Dr. Fleming), I think it will finally result in something that is very much worthwhile.

I thank you, gentlemen. (Applause)

Dr. John Symington (Carthage): May I ask a question?

I should like to ask the Doctor from Asheville what was the cause and what was the effect, in his opinion, of the enlarged and infected tonsils. Were the tonsils the cause of the bad teeth or in his opinion were the infected teeth the cause of the enlarged tonsils?

Dr. J. A. Sinclair (Asheville): Doctor, I don't know. I can't say which was the cart and which was the horse. Perhaps they are mixed up

together, and go together. But back of all of this, it is either one of two things, in my opinion; that is, it is a vitamin trouble or it is an endocrine trouble. I think back of it is one of those two.

SECRETARY FORD: There is one little loophole that Dr. Branch gave us that I don't think we can fail to step into, and that is his school where 100 per cent of the children had never been to a dental office. I would like to have a survey made of that school—he didn't tell us how many had perfect teeth or perfect tonsils in that school.

DR. BRANCH: No, of course, I don't have those figures in my head.

SECRETARY FORD: I noticed smiles on two or three faces when you told us about that school.

DR. BRANCH: If you will write me, I shall be glad to look up the records and give you those figures.

SECRETARY FORD: Now we will have to take care of a little business. At this time we must appoint the committees. There is to be a committee on the President's Address, and I also wish somebody would offer a resolution of sympathy to Dr. Parrott.

PRESIDENT REGISTER: If there is no objection and I hear none, I should like to appoint on the committee to send a telegram of regret and good wishes to Dr. Parrott, Doctors Norton, Bulla, and Knox.

SECRETARY FORD: And Dr. Register has asked me to appoint the following committee on the President's Address: Dr. Buie, Chairman, Dr. Hardin, and Dr. Carlton.

Both of these committees will be prepared to report this afternoon at about three-thirty or four o'clock.

. . . Several announcements were made. . .

SECRETARY FORD: Are there any other committees to appoint?

PRESIDENT REGISTER: None that I know of.

That concludes the program for this morning. We will reconvene at two o'clock.

. . . The meeting thereupon adjourned at twelve-ten o'clock. . .

MONDAY AFTERNOON SESSION

APRIL 30, 1934

The meeting convened at two-ten o'clock, Dr. F. M. Register, President, presiding.

PRESIDENT REGISTER: This morning we failed to appoint one committee that we usually appoint, a Nominating Committee. I should like to appoint on that committee Dr. Hardin, Dr. Bulla, and Dr. Moseley.

SECRETARY FORD: And they are to report, I understand, at the evening session just before the election of officers.

The next paper which will open the afternoon session is by Miss Marie Farley, of Goldsboro, on "Rural Public Health Nursing." Miss Farley is well qualified to present this subject. Being a lady we can't use that expression about growing old in the service, the way we do with gentlemen, and I don't know exactly what term to apply to a lady in a case like this, but she has grown wise and canny and influential in the service, and we will be glad to hear from her.

Miss Farley! (Applause)

RURAL PUBLIC HEALTH NURSING

By Miss Mary Farley, R.N., Goldsboro

Mr. Chairman, and Members of the Public Health Association of North Carolina:

I will endeavor to tell you from a nurse's viewpoint what constitutes public health nursing, tracing briefly something of its history, and discussing its phases and its importance.

When health activities are either partially or entirely carried out by nurses for the benefit of persons living in rural areas, those activities are known as rural public health nursing.

The first organized nursing began with the Ladies' Benevolent Society of Charleston, South Carolina, in 1813, a visiting committee from this group going into assigned sections of the city. But it was not until 1898 that the first public health nurse, at that time called a visiting nurse, was employed in Los Angeles, California. In 1902 the first municipal nurse was placed in the Henry street settlement in New York City. The establishment of the first course in public health nursing at Columbia University followed in 1910, and the setting up of the rural Red Cross nursing service in 1912. It was not until 1915 that North Carolina had her first public health nurse in Miss Rose M. Ehrenfeldt, who worked first in the city of Raleigh under the joint financial support of the North Carolina Tuberculosis Association and the Department of Health of the Raleigh Woman's Club, and afterwards became state director of public health nursing. This office, as you know, was abolished several years ago.

The demand for properly trained public health nurses far exceeds the supply; in other words, there are numbers of nurses doing public health work with only a vague idea of the scope and duties of a real public health nursing program.

The duties of the rural public health nurse are varied. Every year more and more responsibilities are placed upon her and more demands made. Her duties have grown from simple bedside nursing, to infant care, and then to tuberculosis nursing, and finally to school and community nursing. A public health nurse in a rural area must meet the needs of the country and the small town. Any committee looking for a rural public health nurse has in mind a nurse who is gracious and friendly, able to win folks, with a knowledge of rural health problems, one who can get an organization

together, get people interested and working harmoniously in committees, one who can organize baby welfare conferences and mothers' classes; one who can both talk and write—make a speech and write an article for the local papers. She must be able to teach individuals, families, groups; must know how to deal with the difficult problems of poverty, ignorance, and social maladjustment; she must have a knowledge of prenatal and child care; and of course, must be a good nurse.

Hospital training does not prepare a nurse adequately for the field of Public Health. It is the beginning only. Public Health training gives the nurse a sense of preparedness and confidence, enables her to go forward more rapidly, establishes the habits of study and gives her a broader vision, wider interests and a perspective. Her value to the community is increased. The director of her Health Department should have this type of co-worker; the public which she is to serve should be assured of a well-equipped nurse. She should not have to learn by the trial and error method with the community as her experimental field. Here in North Carolina the State should provide for training in Public Health Nursing in institutes or some sort of post-graduate study that would fit nurses for this specialized field.

A rural public health nursing service in North Carolina, or any state, should begin in the State Department of Health, with a person qualified to advise, suggest, assist and even direct a program of rural nursing service in any community in the State.

State Health Departments are responsible for the promotion and protection of Public Health, and it is their duty to plan for and foster practical ways of developing health service in local communities. Poorly informed nurses will not insure a good public health program. Good supervision means good teaching, and we must have some organized scheme of teaching if we are to carry out an effective, creditable or profitable rural health program.

It is not my idea to centralize public health nursing; but I do see the need of having a state official to coöperate with the Rural Public Health Nurse, and her Director or Health Officer, in organizing a nursing program to which the state can point with pride as one that has been standardized and systematized.

I do not for one moment wish to minimize the Health Officer's authority, nor dictate any policies that are to be carried out in the territory which he directs. Public Health Nursing is a branch of Public Health just as is epidemiology or engineering and should be headed by a trained public health man with a group of properly trained public health nurses as his field workers. The field workers, for instance, would go out in various communities in the state helping the Health Officer and his nurses to check up, direct, and plan a well-rounded public health program, based on a study of the sickness and death rates in the area served.

A public health nurse must understand the people with whom she deals. Country people differ somewhat from city people in the angle at which

they look at questions, and in the way they tend to overlook many questions of great importance. They are more traditional, especially in the little towns, and more prejudiced against innovations of all kinds.

Rural public health nursing should further the progress of a general public health program. The nurse should recognize that the health of a community involves a wide variety of interests, and that the rights of none of these should be disregarded in pressing the claims of her health program. The various elements in a community to be considered include: practicing physicians with the established ethics of their profession; school forces with the customs and the prestige of their group; government officials, civic clubs, and welfare agencies. A well-rounded program based on a study of the sickness and death rate in the area served can be carried on successfully only with the help and coöperation of the above mentioned agencies.

Wayne County, in which I serve as Public Health Nurse, has an area of 615 square miles with a total population of fifty-five thousand people, thirty-one thousand white and twenty-four thousand colored. Our rural service embraces school work, control of communicable diseases, including tuberculosis; home visits to prenatal cases, and infants, and the summer round-up of pre-school children, together with special work among midwives.

The examinations of school children require much time and thought on the part of the nurse. First, the record cards must be taken to the school and explanation made to the teacher as to how they must be filled out. Indeed the teachers are most anxious to help in every possible way to spread the gospel of preventive medicine. The nurse assists in all those examinations, keeping records, which include the history of the health life of the children, filing cards, and giving out literature. Slips recording physical defects as dictated by physicians are also made at the school examinations and given to the child to take home.

Home visits to children's parents are made in order to secure their coöperation in remedying physical defects through family physicians, clinics, or hospitals. In connection with home visiting the nurse must make thorough investigations if there is or has been a case of contagious disease. If the nurse finds an orthopedic case, she sets about to have the patient cared for.

Tuberculosis visiting is a constant seeking of undiscovered or hidden cases of tuberculosis, securing medical and sanatorium care, teaching the family preventive measures, securing medical examinations for the family and others who have been exposed, and teaching the use of sputum cups and care of disposal. Even the screening of the house often falls to our lot.

In organizing a baby clinic in a community, the nurse makes house to house visits. Ministers are visited, the program outlined to them and their support solicited. They are asked to announce the time and place of the clinic from their pulpits the following Sunday. If a moving picture theatre is available the manager will gladly put a notice on the screen a few days

previous to the clinic date. If the clinic comes during the school term, notices may be sent through the children to each family. The prominent women and leaders in the community will gladly help in transporting patients, undressing the children and taking histories. Physicians in the different sections of county always respond to an appeal for help and coöperaiton. All defects are referred to family physicians.

The summer round-up of the school children who are to start to school for the first time in the fall is one of the most important phases of a rural public health nursing program. The nurse starts planning these clinics a month or so before the dates for them. She must work through teachers, members of boards of education, parent-teacher associations, lay groups and newspapers to advertise the clinics and secure physicians and dentists for the examinations.

One of the most interesting features of a rural health program is work with the midwives. The annual three day's course is always enjoyed by them. A physical examination is required with a negative Wassermann before they are licensed to handle any case. The value of this work in my county is proved by the fact that of the 84 women who applied for the course only 37 were accepted, the remaining number being disqualified on account of uncleanliness, venereal disease, or lack of intelligence. It is important that midwives come in and report prenatal cases in order that the nurse may visit these cases.

Prenatal work is of vital importance. Many cases would never consult a physician if it were not for the establishment of a prenatal clinic. The more school work I do, the more convinced I am that the place to begin health nursing is with prenatal care. Of course, this should be followed by maternity and pre-school care. Through this work the child will be physically and mentally fitted for school before he begins.

In my opinion the maternity and infancy work is one of the most valuable of the phases of public health work, and it is of vital importance to the State of North Carolina. I would like to see this Public Health Association of North Carolina go on record as endorsing it or requesting the State Board of Health to re-establish this Bureau and continue its work under the supervision of an all-time director, who can direct and push forward this work of protecting the mothers and children of this, our beloved State of North Carolina.

The rural public health nurse utilizes all forces by working through local clubs, churches, parent-teacher associations and all organized groups to help carry out her program. In addition to these various forces every Health Department should have a group of volunteer helpers, composed of lay people, organized into an advisory council of representative people from each township in her county.

In my county of Wayne the Health Advisory Council, which consists of approximately 50 members, has been of untold value to our program. We can not work alone, and the success of any health program is due largely to the support of lay people, whether it be financial or free service

rendered. "We must work with other people." The nurse, whether working alone or as a member of a county unit, must give considerable thought to the organization of lay groups. The strength of any service is not only dependent upon a well-trained staff, but upon intelligent and interested citizens. They are the group who will interpret to the officials the worth of the program. Quoting a Health Officer, "The key to the Public Health Nurse's success in forwarding the health administration program is to find some one in a community to whom she can impart her ideals and this person in turn can then carry the knowledge to her neighbors in a language which is common to them and can be understood." I think he is right. Interested lay people or advisory council or volunteer helpers, no matter what we call them with us reap rewards for the service they render. Like the mercy referred to by Shakespeare—"It is twice blessed, it blesses him who gives and him who takes," and truly, "Service is the rent we pay for our room on earth."

In conclusion, while we all no doubt think of many factors which contribute considerably to insure any effective rural nursing program, it would seem that much depends on the well qualified public health nurse who is equipped with training and ability, who is ready to go to the rural communities, and who can realize her opportunity and responsibility in developing her community.

I wonder how many of us appreciate the responsibilities which public health nursing places upon us as individuals. If we are to reach a creditable, successful rural public health nursing objective, that is, assist in educating individuals and families to protect their own health, to assist in the adjustment of the family and social conditions that affect health, assist in educating the community to develop adequate public health facilities, we must realize that these can be accomplished only through team work, for—

"It ain't the individual
Nor the army as a whole,
But, the everlasting teamwork
Of every bloomin' soul."

. . . Miss Marie Farley presented her prepared paper, at the conclusion of which she made the following extemporaneous remarks:

Miss Farley: I am sorry I wrote this paper before I went up to the convention of the American Nurses' Association in Washington. While there I was impressed by what was said by people from all these various states where they have a public health nursing bureau, where they have a nurse who is directing all of the nurses in the state. It seemed to me that they were getting somewhere in public health nursing, and I wish there were some way that an appropriation could be made for us to have a public health nursing bureau in the State Board of Health. (Applause)

DISCUSSION

SECRETARY FORD: I don't know whether Dr. Ziegler appointed himself to discuss this paper, but I don't think so. I think he was selected because he is the one who can find us the money to get this appropriation. (Laughter)

DR. M. V. ZIEGLER (Raleigh): That is very complimentary, Mr. Chairman.

I think you will all agree with me that Miss Farley has presented a very interesting and informing picture concerning the work of the public health nurse. I had the opportunity of reading over her paper and I find on very careful study of it that she has covered all of the essential activities of the public health nursing service, namely, communicable disease nursing service, including tuberculosis, and veneral diseases; second, the morbidity service, including care of the sick and correction of defects; third, the maternity service, including care during ante partum, post partum and delivery care; and the health supervision which takes in, of course, the school child, pre-school child, and the adult.

Miss Farley has stated and very properly so that hospital training does not prepare a nurse for public health duty. I would add to that that it is only the beginning of her professional training.

Recently we have set up some very specific qualifications for public health nurses with a view to filling certain positions on the staff of a district health service in the western part of the state comprising the counties of Haywood, Jackson, and Swain. We have been besieged from almost all quarters to put on duty nurses who are without public health training, and we have set up the following qualifications for filling these respective positions, five in number:

First, high school graduation or its equivalent as determined by the North Carolina State Department of Education;

Second, graduation from an accredited school for nurses connected with a general hospital having a daily average of fifty patients or more, the curriculum to include practical experience in caring for men, women, and children, together with theoretical and practical instruction in medical, surgical, obstetrical, and pediatric nursing; preference is given to public health nurses who have had training in communicable disease control including tuberculosis and venereal disease; training in the specialties such as eye, ear, nose, and throat, or experience in an outpatient department; and two months' affiliation with some well-organized community health program;

Third, six weeks' instruction in public health nursing in one of the recognized public health nursing courses, together with one year's experience under adequate supervision or, in lieu of that, two years' experience under adequate supervision or, in lieu of that, a public health nursing course endorsed by the National Organization for Public Health Nursing; and,

Fourth, state registration.

We consider that a very minimum. There are, of course, various provisions where an applicant could qualify by having two years' experience in a well-organized health department.

We have defined these standards for training and as Miss Farley has stated some institution of learning or teaching center should arrange for providing this training, and I feel sure that the State Board of Health and the various local boards of health could provide field experience for a selected number of students to give them this year's experience under supervision, as has been carried out during the past year in connection with the training schools of Durham and in connection with the Durham County Health Department—provision has been made to provide field experience for nurses that have only had the benefit of their graduate instruction.

Miss Farley states that the State Health Departments are responsible for the promotion and protection of public health, and it is their duty to plan for and foster practical ways of developing health service in local communities.

This dictum is sound and it embodies all of those services which have as their purpose the protection of the public health. With this principle in mind, efforts are being put forth to provide every community in this state with the services of a whole-time county health unit.

The establishment of a rural public health nursing service in North Carolina as advocated by Miss Farley would in my judgment not fulfil entirely the State Health Department's obligation in providing adequate local public health protection. The development of independent nursing service in unorganized counties has not been encouraged except in so far as such nursing services per se have been made a part of a district health organization and supplemented by the services of a whole-time county health officer.

The public health nurse as Miss Farley has rightly said does not function independently. She works with groups and works more or less under the direction of the medical profession.

We recognize, too, that the public health nurse is not a research agent or an investigator, but she is the agency which gives application to scientific medical and public health principles. The responsibility for the health needs of the community is vested in the health officer or the Board of Health or the Medical Advisory Committee. The Nursing Service is an agency which is utilized in supplying in part the community health needs. The formulation of policies, as Miss Farley says, and programs is beyond the scope of the public health nurse. This must be left to the health officer, the Board of Health, or the Medical Advisory Committee.

She has touched, of course, on the question of medical ethics.

If we assume that a rural nursing service is the ideal in providing community health service for all the counties in North Carolina there is no question in my mind that the State Board of Health and the County

Boards of Health should accept the leadership in providing supervisory service and consultant service.

Miss Farley has also set forth in a most instructive manner the ways and functions and activities of public health nursing and I am very much pleased, and want to emphasize the question of group instruction. She has put forth the need of a public health nurse working in a county with 50,000 people as there are in Wayne County getting over the public health nursing activities through the group method, and that is the situation virtually in every one of our counties in North Carolina with reference to public health nursing as well as other activities—we must depend upon the group method to give expression to our public health activities.

I think, Miss Farley, this is a very interesting paper and I enjoyed it very much. (Applause)

Secretary Ford: Aren't there some others who would like to carry on this discussion and perhaps differ with Dr. Ziegler in some way, or with Miss Farley? That always starts a discussion. Can't we hear from one of the nurses here who would like to back up her profession.

May we hear from Dr. Ferrall? (Applause)

Dr. John A. Ferrall (New York): Mr. Chairman, Ladies and Gentlemen: I was very much interested in the paper presented by Miss Farley and also in the last two papers I heard just before noon. I was impressed by all three papers, and with the emphasis placed upon the importance of acquiring accurate information with regard to the community or the county under consideration. According to Webster's definition of research, all three reflected the conduct of an intelligent sort of research. Webster defines "research" as a careful or a critical examination seeking facts and formulating principles. It seems to me that your study of the maternity and infancy problem, the study of your dental problem, and the study of your nursing problems and activities here in North Carolina all reflected that the most intelligent, the most needed, and the most useful type of research in which we can engage is being carried on, because when funds are limited, economic conditions are difficult and the needs of services great, it is extremely important that we have assembled the basic facts as guidance in the formulation of sound programs of procedure for the conduct of our work.

I was very much interested to hear Miss Farley emphasize the fact that it is not sufficient that a nurse—and this is equally true and perhaps even more so with the health officer—should merely have the knowledge which may be regarded as a part of her immediate responsibility. It is necessary that we know what other agencies are doing in the community for the elevation of the standards of living.

She made reference to co-ordinated activities and coöperation in the fields of public education, public health, and in the field of the practice of medicine. I think she could have gone even further and given consideration to the field of agriculture if in the community in which she is working agriculture is the foundation from which is derived the funds for

the payment of taxes which, in turn, finance the social services calculated to elevate the standards of living. And I should advocate going even a step further, to determine whether or not the funds now collected from the taxpayers are as wisely and as judiciously used as they might be. There are a number of economists who believe that if the unnecessary expenditure of taxes for the conduct of other useless activities should be eliminated from our state and local governments a much larger sum of money would be available without increasing the tax rates to carry on a much more effective and a much more useful service in these fields of health, education, and welfare.

That leads in turn to consideration of the question of whether or not our local public administration is as soundly provided for as it might be and if it is not then I believe that just as we should coöperate in the health and welfare services we should lend ourselves to a consideration of the calibre of the administrative leadership we have in the field of general administration and perhaps of improving conditions by advocating the employment of what might be termed a trained, capable, public administrator who would serve to co-ordinate our activities and give the taxpayers the largest possible return for the funds they pay for the various essential services.

I congratulate Miss Farley.

I am very glad to be here and I am sorry that another engagement is going to prevent my remaining through the session.

Thank you very much. (Applause)

Secretary Ford: The next paper is an address. Dr. Hudson is a pinchhitter and we expect him to win the game with a home run. We had two or three refusals and it got to be quite late, and he says the telegram we sent read, "You are on the program." He never made any reply but he is on, just the same. He is an old faithful worker and always dependable and always presents something that is worth listening to. He will discuss, "A Practical Measles Control Program." (Applause)

A PRACTICAL MEASLES CONTROL PROGRAM

By Dr. C. C. Hudson, Greensboro

The control of measles outbreaks has been one of the most difficult problems which health departments have had to face. The very rapid spread of the disease, the enormous number of cases during the peak of the outbreak, the attitude of the public who look upon having the disease as an absolute necessity, and the absence of adequate facilities for handling the disease has made it one of the problems which we have really not handled in an adequate manner from the health standpoint.

For a number of years we have had adequate knowledge of how to control measles, but the application of this knowledge has been a very difficult problem. As previously pointed out in a paper read before the section of Preventive Medicine and Public Education by Dr. Gilmore, of

Greensboro, in 1928, and a later paper by Dr. Hamilton Park, of New York, and other investigators have shown that convalescent serum properly used will prevent measles and its complications. They have also pointed out that whole blood from persons who have had measles may be used as a means of preventing the disease.

In considering a measles program we must first consider the nature of the outbreak, as we must always understand our problem before we can work out measures for handling that particular problem. Outbreaks of measles occur regularly every two to four years in most of our communities. When the outbreak occurs at two-year intervals it is usually short and we do not expect many cases, as our non-immune population is not usually very large. The nature of the disease is also milder, as it has been repeatedly pointed out that when we have a large amount of susceptible material in the community the cases are apt to be more severe. When we do not have an outbreak of measles for four years we can usually expect, in most communities, a large number of cases and the outbreak will be of a rather severe type with numerous complications. The outbreaks usually last four to five months. An outbreak of measles usually begins with a few cases each week and the cases multiply quite rapidly as the disease becomes more widespread in the community and reaches the peak in about six weeks or two months and then after two or three weeks the number of cases begins to decline and in six or eight weeks more the disease is practically controlled. During the height of the outbreak an enormous number of measles cases in proportion to the population will be reported. As an example of the measles outbreak the following cases were reported in Greensboro, N. C., a city of approximately 54,000 population, in the early part of 1934:

Month	*Cases*
January	23
February	269
March	1284
April	340
May	Probably 40 or 50 cases

The essential elements of a measles control program are about those of any other control program:

1. We want to prevent illness of the individual in so far as it is possible.
2. To control the loss of life and permanent disability.
3. Prevent the loss of time at school or employment.
4. Give the individual permanent protection in so far as this is possible so that he will not be susceptible to the disease later in life.

On account of the very rapid spread of measles it is impossible for us at the present time to entirely prevent illness from the disease, so it is necessary to turn our attention to the other aspects of the disease. We can prevent, in a large measure, the loss of life from measles, and also

a large part of the permanent disability which results from it. Most of the deaths from measles are in children under four years of age. By using convalescent serum in all small children it is possible, as has been pointed out in previous papers, to prevent complications and danger in the individual and at the same time permanently protect the child. The use of 6 c.c. of serum from an individual who has had measles from twelve to fifty days previously on the 6th or 7th day after the disease has been contracted will so modify the infection that the danger is eliminated and the mild attack confers permanent immunity. Twenty or thirty c.c. of whole blood from a person who has had measles given in the same way will do the same.

As measles is not often fatal in children over four years of age and adults, provided they are given proper care by physicians, the problem in this age group is simply that of proper care of the individual through physicians and nurses and keeping the individual at rest for a sufficient time to ward off danger of complications, especially pneumonia and the eyes.

In preventing loss of time from measles we have to consider the loss of time on account of quarantine, as our school authorities are very anxious to keep up attendance records as their allotment from the State is cut when the children are not in attendance. We know that cases of measles are not infectious until the first symptoms occur. When it is possible to work out a definite time of exposure there is no reason why children cannot continue in school until the 8th day exposure or until the 5th day after the first case occurs in the home. As all children who have measles are protected and as there is not much danger from carrying the contagion to school in the clothing, there is little reason for keeping children who have recovered from measles or who have had the disease out of school. The use of these measures will save an enormous number of school days during an outbreak.

It is necessary that we have a proper organization for handling outbreaks of measles if we are to give these outbreaks the attention which they deserve.

1. We must have a central depot, or headquarters, to which all cases may be reported and from which quarantine notices, literature, news items, etc., may be sent and at which serum may be distributed to physicians.
2. An adequate number of nurses or other instructors must be provided to handle the cases during the peak of the outbreak.
3. Physicians must be instructed in methods to be used in securing an adequate supply of prophylactic serum and also provision must be made for a place to which patients may be taken for collecting and preparing the serum.
4. Adequate laboratory equipment is absolutely essential, a necessary supply of vials, Wasserman tubes, 50 c.c. hypo syringes, 16 or 18

gauge needles, etc., must be provided and also preservative agents, etc., for preparing the serum.

5. It is necessary to have some funds with which to pay donors for blood, but with adequate publicity and coöperation from the physicians, most of this will be donated.
6. The teachers must be trained to follow up and report to nurses and headquarters all children who are out of school, as it is necessary that all cases of measles be reported to the central office within 24 hours after the eruption occurs.
7. Complete coöperation of the news organization is necessary so that the public may be kept informed as to the outbreak of the disease and the measures which are being taken for their protection.

The steps to be taken in handling a measles outbreak are essentially as follows:

Every case must be reported to the central office as quickly as possible after it has been definitely established that the individual has measles. In all publicity the early symptoms of measles should be emphasized and the public advised to call a physician when a child shows the symptoms. Advice should also be given that any patient showing symptoms of measles be put to bed immediately and precautions kept up. Weekly bulletins giving the number of cases reported and other facts are best for this purpose. If a physician is not called provision should be made for having the report telephoned to the office by the family or by others who may know about the case. The teachers in the schools should also be instructed to report all cases coming to their attention which have not been quarantined.

At the central office all placards should be made out and literature giving instructions in regard to measles attached to each placard. These should be sent to the home by some one trained to give instruction as to the quarantine and precautions to be taken. The health nurse is the best agent for carrying on this work. At this visit, if a physician has not been called, the family should be urged to call a physician, as every case of measles should be under the care of a physician. An investigation as to the source of infection and also as to those exposed should be made, particular attention being given to the exact date of exposure. The school room, Sunday School, etc., should also be given attention in considering those who have been exposed. The family should be instructed in regard to protecting the little children against the disease, and any neighbors who have children exposed should be given similiar instructions. During these visits, and especially when releasing cases, the nurse should be on the lookout for persons from whom blood can be secured for preparing convalescent serum. This is especially important during the early days of an outbreak, when few cases are reported. If possible, blood should be secured from practically every one until a considerable supply is on hand. It should be fairly easy to predict about the size of the outbreak and to

estimate how many doses of serum will probably be needed and every means should be taken to secure this serum as early as possible.

Careful instructions should also be given by the investigators as to the quarantine and isolation of the patient and also the precautions to be taken to prevent complications.

It is especially important that special attention be given to follow-up of school children who have been exposed. It is impossible to entirely eradicate measles and we do not favor closing schools on account of it but certain room quarantines are advised. Children from exposed rooms should not be allowed to mingle with other children in the school, and notices should be sent to the parents stating that the children have possibly contracted the disease and advise them as to precautions which should be taken as soon as they show the early symptoms.

Many people doubt the efficacy of any measures which we can use for the control of measles outbreaks. We believe that this plan, if followed out in an adequate manner and with a sufficient organization, will give results. During the 1928 outbreak of measles which occurred in Greensboro, coöperating with the physicians of the city, a system for securing and preparing convalescent serum in the city laboratory was worked out and one hundred and ninety-two doses of serum were prepared and distributed during this outbreak. The same plan has been used in the two subsequent outbreaks which have occurred. The efficiency of this system has been gradually improved and the results may be seen in the following table:

Year	*Cases of measles*	*Deaths from measles*	*Number cases per death*
1928	2883	11	262
1932	2647	3	882
1934	1909	0	?

We realize that it is impossible to entirely eliminate the question of mildness of the outbreak and of accident and whether or not the above apparent good results shown were due to the disease being milder or the fact that we were lucky it is impossible to state, but we do believe the above plan is practical if carried out.

Perhaps the most ideal plan would be to secure sufficient serum as early as possible in the outbreak and then voluntarily expose the children who are susceptible and immunize them on the 6th or 7th day after such exposure, thus being able to always state definitely when the child has been exposed to the disease. We believe that this would be the best method for controlling measles, provided an adequate supply of measles serum can be secured.

Many of our health organizations in the state have small laboratories available in hospitals which could readily be used as headquarters for preparing convalescent serum for physicians. Those in charge of the health work in our various communities should look toward the next measles outbreak and should begin now perfecting an organization which

will be effective in preventing the needless deaths which we have been having from this cause.

DISCUSSION

Dr. R. S. McGeachy (Greenville): Dr. Hudson mentioned something to me that led to quite serious thought and that is the enforced absences from school on account of contagious disease.

In my county one or two of the men came to me and told me, "We won't have any school next year if we have to exclude every child in every family in which there is a case of measles."

We have just gone through an epidemic of pink eye and now measles is starting up and they say next year we are not going to have any school. They say we are just up against it. They say if our teacher load for next year is based on our attendance for this year we needn't open up school next year.

What are you going to do? You have to work in harmony with the school authorities, and I know they are telling me the truth.

I think that there ought to be some arrangement between the Board of Health and the Board of Education whereby legally enforced absences will not count against the school attendance. I don't know whether it can be worked out or not, but it seems hard to force a child out of school and then charge it up against the superintendents and the teachers, and I certainly hope we can do something to correct that situation.

Of course, you all know that the regulations state that children who have not had the measles and who have not had the whooping-cough must stay out. Well, who knows whether they have had it or not? I will admit I don't. Very often, just as honest and conscientious parents as you can find anywhere don't know whether they have had it or not. Very often, even though they have been diagnosed by the physician as having had measles and whooping-cough when these diseases get into the neighborhood they will have them again.

I have given this matter no little consideration since I have been in public health work, and I hope that it will be given still further consideration in the future. I understand that one of the members of the Board of Equalization is going to talk to us tonight. Perhaps we can take it up with him. This is something that is more serious I think than a great many of us realize as far as the teachers and the schools are concerned, because they have been hit hard enough.

You all may have a little bit better system than we have or probably your principals and teachers are not quite so honest and don't record the absences, or something like that. Some of my principals were thinking about doing that and then they said, "No, we won't count them present unless they are present."

I should like to hear a discussion of just that one point and see if there isn't some action that this body can take in the way of recommending to those in authority some means of protecting the schools in this connection.

Dr. W. C. Davison (Durham): I should like very much to endorse what Dr. Hudson has brought out about the use of prophylactic serum, and I hope more health officers will take it up and make it available to the community. In Durham we have been doing it to a fairly large extent. It has gotten so common now we have to pay for the blood on the same basis as we pay for blood transfusions, namely, $5.00 a hundred c.c. of whole blood, and we get 30 c.c. yield. It works out, using a 6 c.c. dose, to about 85 or 90 cents for each dose. So it is fairly expensive, and if through publicity we can get children to volunteer I am sure it will be a tremendous asset.

We have all been using it for mumps. It is equally efficacious there. We have also used it for chickenpox. It is something that ought to be presented throughout the state as a means of cutting down school absences as well as avoiding danger of infection. Of course, measles, mumps and chickenpox don't have a very high mortality and most physicians feel that they are not worth bothering about, but the point the gentleman made about school attendance is very important.

Also warning should be given that occasionally one sees reactions with human serum. I don't know the exact figures. I think somewhere around one out of 500 or 1,000 children who receive human serum may have a severe reaction which may produce fever and headache and so on for a period of seven or eight days. Those cases are very uncommon and the benefits to be derived from it are so striking that I think more of us ought to use it.

Of course, all of this serum should have a Wasserman done on it so that we know that it is absolutely safe.

Dr. G. M. Cooper (Raleigh): With reference to the point that Dr. McGeachy made about penalizing the counties for non-attendance at school, I want to say that in the last few days we have received two or three urgent requests from the quarantine officers in two or three counties to intercede for them in their behalf with the Department of Education to modify that ruling, but it can't be done. We can't do anything about it. The only thing that can be done in that respect is to make your appeal direct to the Department of Education. I think that they are right. I mean the quarantine officers, because it is bad practice to stop the schools. The only recourse the counties have is to stop the schools or suspend the schools until all the children get well. That is bad practice; we know that. If we can make the Department of Education see that particular point there will be some chance in getting the rules modified. I just wanted to bring that point out to indicate that a number of counties have been working on that same line. It is right along on a par with undertaking to get the State School Commission to modify their inflexible rule prohibiting the use of the school buses for the transportation of children for pre-school clinics. I don't see how anything can be more important than that to the school system, yet they won't do it.

They turned down, two weeks ago in Raleigh, an appeal from Robeson County on that very point and I hope some of you will ask Mr. Attmore when he gets up here tonight to take the matter up with the Commission again, so before another fall and another spring they will allow the use of the buses to transport the children. I want to call attention to an article in the May issue of the *Health Bulletin* on the use of convalescent serum for measles, written especially for us by Doctor Sidbury, a pediatrician of Wilmington. I am sure you will find the article very interesting along the lines Doctor Hudson discussed. (Applause)

DR. A. C. BULLA (Raleigh): I would like to ask Doctor Hudson a question or two. The first one is: I would like to know if a person after he has modified his measles will he convey it to a susceptible child?

I have seen some articles in which they didn't advocate as large dose as Doctor Hudson suggested. Of course that depends on the child. Two and a half c.c. up to six c.c.

We are all interested in the control of communicable diseases; there isn't any doubt about that. We must admit that we are doing very little about it. Unless we can establish some principle based on scientific knowledge we are not doing very much towards preventing diseases. We are doing what is required of us, quarantine, excluding pupils from school, etc. That isn't enough when it comes to practice of the scientific things that we know are applicable to the control of communicable diseases.

When measles first broke out in Raleigh we had this same experience that Dr. Hudson had—but we found that to start with the incubation period was not more than eight or nine days. That has gradually lengthened up to its usual incubation period of fourteen or fifteen days. We started out with our usual practice of letting the susceptible child go to school for seven to eight days after it had become exposed and we found that they were developing measles on the seventh, eighth, or ninth day. We had to change that procedure for a while.

DR. NORTON (Rocky Mount): I didn't hear the first of this discussion, and I may say something that has already been said. I just want to call attention to the fact that in rural areas and in smaller towns where it is particularly difficult to get the convalescent serum, one of the things that we shouldn't forget is the fact that we can get almost as much good out of adult immune whole blood, usually using ten or fifteen c.c. and get practically as good results. I just want to be sure that that was not overlooked and Doctor Hudson may have called attention to it in his paper.

We have had a good bit of experience with that in Rocky Mount during the past season and excellent results have been obtained with it.

SECRETARY FORD: If there is no further discussion, will you close, Doctor Hudson?

DOCTOR HUDSON: Mr. Chairman and Gentlemen: So many of you were interested in this discussion. I believe we have a real problem and one

to which we should devote considerable discussion. In regard to Doctor McGeachy's question we have been interested in cutting down the loss of time on account of quarantine just as much as possible but in most of our cities it would seem to be a more practical proposition to close up certain of our schools if they are going to cut the allotment to the schools during the following year.

Take for instance: twelve hundred eighty-four children in March losing approximately two weeks or perhaps an average of seventeen days on account of measles. That is about a fifth or a sixth of our school population—in the lower grades and it might be well for us just to close up those schools for a month after we get the measles pretty well disseminated. Let the children have the disease and then we will get our allotment during the next year.

Doctor Davison brought out the question of Wassermanns and reactions. I did not, as you noticed, attempt to discuss the method of preparing the serum as we have had that discussed in two previous papers before this organization. I think the question which Dr. Cooper brought up as to whether or not we should have a resolution should be referred to the Resolutions Committee for consideration.

Dr. Bulla brought up the question of whether or not these children who have had the immunizing dose of serum could transfer the disease. I should think they could. If I am in public health work and have access to a good laboratory and facilities available for it—the next time I am faced with a measles outbreak I am going to do something more radical than I have done so far. When we have our first measles case I am going to try to get blood from every individual who has the disease until I have accumulated a thousand or fifteen hundred doses of serum and then I am going to advocate voluntary exposure of children to measles and have a measles party and get over it so we can control the exposure.

We can carry it even further. We can control the exposure in that way and know just when they are exposed and know just when to give our serum. We can modify the disease in any case and can eliminate all danger —or practically all danger from it.

We have had no experience with the two and a half c.c. dose, Dr. Bulla, but I should see no reason why in small children—very small children—two and a half c.c. of serum from blood taken on perhaps the fourteenth or eighteenth or twenty-first day should not take. We have used uniform doses of six c.c. of serum in all our cases.

In regard to the whole adult blood, using ten or fifteen c.c. we know that Dr. Parks has advocated somewhat larger doses than that, twenty to forty c.c., I believe. I believe he is using thirty c.c. that he has advocated for prevention of measles. We can use whole blood all right, but the more practical method, it seems to me, is if we can have a small hypodermic of four, five or six c.c. and have it carried so that the physicians can secure it just the same as any other vaccine and either voluntarily expose the smaller children and then immunize them or after they are exposed

immunize them on the sixth day and let them have a little modified measles, which is perhaps the ideal method.

PRESIDENT REGISTER: I will ask the Resolutions Committee to take note of what Dr. Hudson has said in making up their resolutions.

SECRETARY FORD: The next paper on the program is by Mr. Warren H. Booker, C.E., Director of Sanitary Engineering, State Board of Health.

SCHOOL SANITATION

By WARREN H. BOOKER, C.E.
Director Division of Sanitary Engineering, North Carolina
State Board of Health

For a state to require compulsory attendance at schools, and to appropriate $16,000,000 a year to maintain and operate these schools with water supplies, sewerage, desks, lighting, or other sanitary features of such a nature as to endanger life and health, and lower efficiency, not only of the school children of today, but of the future citizens of tomorrow, is little short of a gross crime of negligence by the state against the state. During the school age of all periods of life, the individual should be surrounded with the very best of those things of life which will promote the best and most efficient development of the child, not only in mind, but in body and soul as well. Here, truly, an ounce of prevention is worth a pound of cure. Here the ounce of prevention should be applied to forestall a lifetime of lowered efficiency due to some easily corrected item of school sanitation. Bad school desks may readily cause or aggravate improper posture throughout life. Improper school lighting may readily have a direct bearing on a lifetime of impaired vision. Many other easily remedied items of school sanitation may have a direct and an enormous bearing on the vigor, vitality, and efficiency, not only upon the school child, but also upon the individual throughout adult life.

Just as in many of our industries, the quality of the final product is greatly influenced by such matters as temperature, humidity, quality of water supply, and so on; so the end results of all our educational efforts likewise, for most efficient results depend upon having certain fundamental conditions reasonably favorable to the proper training, growth, and development of the child. Any great business or industrial enterprise expending $16,000,000 and more a year will study carefully and strive diligently to provide conditions that will most efficiently produce the end result desired. Similarly, it would seem that we as citizens and health workers, in dealing with such impressionable, such easily influenced, and such easily affected materials as human individuals, their health and their lives, should devote every reasonable effort to provide those features which make for efficiency, health, and happiness. This is particularly true when it is so often almost as easy to provide the proper sanitary features, as it is to provide the wrong thing.

But, do we do this? I shall take but a moment of your time to present a picture of one fundamental phase of school sanitation, that of safe drinking water supplies.

PUBLIC SCHOOL WATER SUPPLIES			RESURVEY OF 13 COUNTIES	
Kind	*No. of Schools*	*Enrollment*	*1931*	*1934*
City Water	477	243,248	7.3%	12.0%
Drilled Wells	1233	258,852	26.4%	31.4%
Shallow Wells	802	91,008	21.5%	30.8%
Open Wells	437	33,267	10.2%	8.9%
Springs	631	43,664	9.9%	6.2%
No Water Supply	1783	109,232	24.7%	10.7%
SANITARY CONDITIONS				
Fair to Good	1629	496,348	29.9%	45.4%
Bad	1951	173,691	50.5%	38.8%

From the accompanying table showing the approximate state-wide results of a school survey in 76 counties in 1931, it will be seen that nearly one-third of our schools had no water supplies at all; slightly *less* than one-third had what might be classed as fair to good water supplies, and slightly more than one-third of our schools had "bad" or potentially dangerous water supplies.

Such facts as these might suggest that many of us do not care much about what becomes of our annual investment of over $16,000,000 in the operation of our schools, or else that we are not familiar with actual conditions, or that we may be inclined to "let George do it." But, gentlemen, there's the rub. You and I are George. And you and I can't do this job—you and I can't correct this condition single-handed. This is a man's sized job. From this we must let these facts be known, or the responsibility will be ours. In just about the same proportion that we call attention to these and similar facts, we will get results.

Again I want to call the matter of school sewerage facilities to your attention.

PUBLIC SCHOOL SEWAGE			RESURVEY OF 13 COUNTIES	
Kind	*No. of Schools*	*Enrollment*	*1931*	*1934*
City Sewage	369	212,007	5.9%	11.3%
Pit Privies	2600	254,003	47.0%	69.1%
Surface Privies	825	63,100	21.8%	3.5%
Septic Tanks	559	203,120	10.8%	12.3%
No sewage	1009	47,041	14.5%	3.8%
SANITARY CONDITIONS				
Fair to Good	1283	395,388	30.1%	77.3%
Bad	3070	336,842	55.4%	18.9%

From the accompanying table it will be seen that in 1931 roughly one-fifth of the schools of our state were without any sewerage facilities whatsoever. One-fourth had fair to good sewerage facilities, and over half had "bad" or potentially dangerous sewerage facilities.

This may be a rather gloomy picture, but this is no time to become discouraged. This is no place for a faint heart. This is an opportunity—this is a challenge to the best and to the utmost that is in you and me. If this does not stir our determination, we are not worthy of the place we hold.

A little glance at North Carolina's typhoid picture by age groups, compared with that of the United States, is interesting and suggestive.

4.5%	5.4%	36.7%	33.9%	58.8%	60.7%
N.C.	U.S.	N.C.	U.S.	N.C.	U.S.
PRE-SCHOOL AGE		SCHOOL AGE		POST-SCHOOL AGE	

By way of suggestion that our schools do not need to be death traps from typhoid or other diseases of insanitation, it is at least interesting to consider Durham County.

In Durham County the schools were sanitated in a large measure as regards water and sewerage in 1927-28. The following table shows the total number of deaths by age groups during the five-year period prior to this school sanitation work, and during the five-year period after school sanitation.

	Pre-School Ages	*School Ages*	*Post School Ages*
Before School Sanitation	1	12	13
After School Sanitation	2	0	9

Of course, a lot of things were happening in Durham County during this time besides school sanitation. There was a lot of other sanitation and other health work going on. The typhoid rate all over the state decreased. Also, Duke Hospital was established in Durham County. But nevertheless, what happened in Durham County is worth noting.

Now to return for a few moments to the matter of possible improvement in water supply and sewerage at our schools, it is interesting to note what has been accomplished in thirteen counties taken at random out of the 76 counties surveyed in 1931. These thirteen counties were re-surveyed during the last 30 days. In order to better appreciate the changes that have taken place from 1931 to 1934, the results are expressed in percentages.

(Here refer to second half of first 2 tables)

Most of these improvements were made through the coöperation of the CWA in school sanitation since January 1. A small amount of publicity, combined with hearty coöperation from county health departments, and such limited assistance as could be offered by the State Board of Health, started the ball to rolling about a year ago. Of course, it is not claimed that this is in any sense an accurate or complete picture. It merely represents the approximate results in 13 out of 76 counties along two lines of school sanitation, although it is contended that water and sewerage are two very important lines of school sanitation. It is felt, however, that these figures do represent to some extent the general trend throughout the state. While it is encouraging, it is far from being all that is desired. Our

ideal should be not only to have all school sewerage facilities in such condition that any health worker would class them as "fair to good," but we should have as our goal a safe running water supply under pressure, and water-carried sewerage in every permanent school in North Carolina. That is something to look forward to.

Furthermore, it is not an impossible goal. While running water and sewerage for every permanent school should be our goal, it is undoubtedly the part of wisdom to strive for some of the lesser fundamental features, or stepping stones, such as pit privies where there were surface privies, or no privies at all, and safe water supplies with pumps and covered well tops where there were open well tops, or no water supplies at all.

After school sanitation has generally advanced to this level, then we may press forward with more confidence of public support for the next advance to running water and sewerage.

To attain in part this first objective, it is suggested that we all keep on the alert and use every effort to secure Federal aid in the form of FERA, or otherwise, for all the schools in our counties. Much can be attained by taking full advantage of every opportunity for advancement, as these opportunities present. Every advance will place us in a better position for the next advance.

We are making more rapid progress in sanitation now than we have ever made. Some 1376 standard school pit privies have been built through the CWA since January 1. We should not let the fact that North Carolina had some 2,600 schools with pit privies, or 825 schools with surface privies, or 1,000 schools with no privies at all, in 1931, discourage us. Let us remember that within the memory of men still active, less than 57 years ago, the Capitol Square in Raleigh had its privies. A battery of privies graced the northwest corner of our Capitol Square opposite the present State Departments Building and State Department of Agriculture Building. If the Capitol Square had its privies 57 years ago, it is scarcely necessary to surmise what our schools and private homes may or may not have had at that time. We have advanced a long way in school sanitation, as well as in other matters, since the days of Governor Vance.

But safe water supplies and adequate sewerage facilities do not by any manner of means tell the entire story of school sanitation. Your time and patience forbid more than mentioning such matters as housing, seating, lighting, heating, ventilation and sanitation in gymnasiums, toilets, shower baths, and sanitation and food handling in school cafeterias.

Much of the sanitation of these features relates to the original design and construction of the school plants. But as to such architectural features as lighting, seating, toilet facilities, heating, ventilation, handling of the school drinking water, and other sanitary features, no county or state health worker has any definite authority. Many of these matters are left to the architect, or to chance. By statute it is wisely provided that our state insurance officials shall have some authority in matters of design and

construction as regards fire protection. That undoubtedly is as it should be. By the same token it would seem that some health authority should be charged with maintaining reasonable standards of sanitation in the design and construction of our school plants.

Unfortunately, comparatively few schools have been built or remodeled recently. However, during the recent hectic days of the CWA and the PWA quite a number of plans for permanent school improvements were submitted voluntarily by architects, and by the Department of Public Instruction, but owing to the tremendous rush of work, and shortage of personnel, very little service or assistance could be rendered.

It is to be hoped that some provision may be made in the future whereby all plans for school improvements may receive the careful examination and ultimate approval of some health official familiar with that class of work before construction is started. By this means many serious errors and permanent defects in school sanitation may be prevented.

The present statute on school sanitation is an antiquated, ineffective, vague, and unwieldy law which provides only for "two sanitary privies at each public school" and a "good" water supply. No reference is made to proper seating, sewerage, running water under pressure, drinking fountains, heating, lighting, ventilation, or any other feature of sanitation. It is to be hoped that this situation may be remedied in the not far distant future.

The importance and value of good sanitation at our public schools on the sanitary consciousness of the community is an important item which should not be overlooked. One example of good sanitation in each neighborhood would be of tremendous value as an example to the entire community. The importance of reasonable school sanitation, or the lack of school sanitation, may well be expected to have an effect which will to a large extent be a lasting effect on the future citizens. We should never lose sight of the fact that these school children of today will be in the saddle, and will be the leaders of their communities in thought and action tomorrow. They will very soon be taking our places. How they react or respond to appeals for more and better public health work in the future may to a large extent depend upon what you and I can offer them in the way of school sanitation today.

But, we need not wait until these school children become men and women for the effect of good or bad school sanitation. The very day that school sanitation is improved in a school, that very day the news goes home to father and mother. Fellow health worker, if you would reach father and mother easily, quickly, and cheaply, do it through the school child, and school sanitation.

These and similar thoughts on the general subject of school sanitation make this one of the most interesting, most vital, most challenging features of public health work to some of us.

Gentlemen, the field of school sanitation is practically uncultivated—it is almost untouched in North Carolina.

DISCUSSION

PRESIDENT REGISTER: This paper is open for discussion, gentlemen.

DR. WILBURT C. DAVISON (Durham): I hesitate to discuss a second paper but I attended a discussion on school sanitation at Raleigh at Dr. Cooper's two weeks ago and two things came out which I think important. One is the suggestion that there should be a school for janitors in connection with these schools to maintain the sanitation already there. The second suggestion which Dr. McCabe and Dr. Cooper and I made is that there should be a school for principals and superintendents.

What happens in Durham where they have good school sanitation? My small daughter comes back and tells me certain things haven't got the balmy odor they ought to have; I call up Dr. Epperson and he calls up the school principal and the principal calls up the janitor. The circle should be reversed. The principal and janitor should have been on the job because the sanitation is all right—the traps get jammed up. There should be a school for both janitors and principals and I hope the Health Department will instill that in the Department of Education. (Applause)

(The Engineering Division of the State Department of Education have schools for janitors. *Editor.*)

SECRETARY FORD: I want to say that down in Craven County we had for three years in the summer school there a school for janitors and all the janitors there were from the consolidated schools. In that county there are only three white schools that are not consolidated, small schools—the rest of them are, eleven or twelve. We had it not only for sanitation but for heating, taking care of furnaces, preparing furnaces in the spring so they will be in good shape in the fall, instead of leaving them half full of water and wet ashes and so forth, and finding the thing all fallen to pieces in the fall—taking care of school supplies and cleaning and scrubbing and so forth.

We found one funny result. After the second year they all struck for more pay. That is, like a lot of new machinery put on, CWA machinery and all that, you find a lot of funny results because the machine hasn't been tried out carefully before you use it and in this case we made that job so important and the pay was already so entirely inadequate, they struck for more pay and there was no provision for it. It was really worth more, but they belonged to the great class of public servants and public servants are not paid very much any more than colored servants are—they are all in the same class.

There is one little school down in Beaufort County that kind of stands out like a bright light in a dark room. About eight miles from the highway there is a little three-teacher colored school and I went up there in October and found they collected the pennies there—the little folks brought their pennies—and the girls in the sixth and seventh grades bought a pail and scrubbing brush and some soap, and—I have checked it up since, checked it up through not only my going there at unexpected times, but other ways—twice a week they scrubbed the floors and the windows and

the toilet seats and the toilet floors, the privies in that school, all this year. They did it voluntarily without any direct request. Of course it may be the school nurse's influence and mine—I hope at least we have been indirectly effective in that way in getting those results. But we didn't ask them to do it, didn't mention it to them. During the year one other rural colored school was doing the same thing. It was one of the largest rural colored schools. The teacher (and I have gone there unexpectedly and inspected those toilets personally,) is not scrubbing them, but he is going out every day or every two or three days and inspecting the toilets himself.

That is not done in any white school in the county. I don't see how we can, without keeping our tongue in our cheeks, talk to these high school and seventh grade children about sanitation and all that when we know that they are carrying on their feet right then the results of being out in the toilets. I wonder how many health officers go to the toilets and inspect them when they make their rounds.

Dr. E. R. Hardin (Lumberton): Supplementing what Dr. Davison said, I think there should also be a school for county superintendents in education on the matter of sanitation.

In order to see school superintendents it must be about putting in a new roof on a building or adding another room or something like that. Whenever the matter of improving sanitation in regard to schools comes up it is always said we have no money and what little we have we must use in repairing our school buildings.

Of course, I think the matter of consolidation of schools is one thing that has held back improvement in school sanitation in North Carolina in the last fifteen years. I know practically all consolidations in schools in the counties I have been in have occurred during that period, in the last eighteen years. There is one fact that we must bear in mind and that is that school sanitation is not going to be improved much in North Carolina until the public demands it and the public is not going to demand it until the facts are presented to them, not one time but continuously. That is the way the public is. We can't educate the public on any one thing in public health by just telling them about it one time or two times or three times. It must be a continuous process. These facts that Dr. Booker has presented here today, to my mind ought to be published in the *State Bulletin* and all our state papers, our county papers, and the State Board of Health should have some agent going around every so often to check up these things in the county. Then they should be published and the county health officer should back it up. It has a great deal more force if it comes out of Raleigh. It should, of course, be backed up by the county health officers.

As he says, sewerage and water is not all of the trouble. You fellows probably have had the same experience that I have. One of the most powerful things I see in our schools is this matter of posture. I have never seen so many hunched-back or humpback children in my life as you

find in these rural consolidated schools. A great deal of that is naturally due to the fact that these children are sitting at desks that are not adequate, that are not suitable for them.

We ought to start something to correct that condition in North Carolina in our schools. We ought also to start some measure to correct this lighting system. There is a simple instrument that will measure the light in any schoolroom on any child's desk and we should have some responsible agent capable of doing that thing going through the various counties getting this information and putting it before the public from year to year if we want to get results. As I said in the beginning the public is not going to be willing to spend their money for this thing until they see just where we stand. That is a process of education.

Dr. C. C. Hudson (Greensboro): Mr. Chairman, I am delighted that Dr. Booker has made this survey of the schools in the state which shows the condition of the sewage disposal and of the water supply. We know that in order to control typhoid fever, dysentery, and to a certain extent some of our other diseases it is absolutely essential that we have the proper sewage disposal system and the proper water supply. We have been in the past depending too much upon vaccination of our population as a means for controlling typhoid fever. Sanitation should be the first essential for the home and school.

These figures only reflect the condition of those communities. You will find, in a community in which the children go to schools where there is improper sewerage disposal or unsafe water supply, probably the same conditions obtain in the homes of the leading people in that community.

The most valuable thing which this lesson will bring to this state will be the teaching of the importance of proper sewerage disposal and proper water supply for the homes, because when we educate those children and educate those people as to what constitutes proper sanitation and proper water supply, we know that then we will be giving them a proper sanitary education. We have not been doing that in the past in those communities.

I don't think we, as health officers, can do anything which is of more value to our respective communities than, especially at a time when we are putting on our typhoid immunization campaigns, teach them that that is a temporary measure, that it is not necessary to shoot vaccines into people; that proper sanitation will take care of not only typhoid fever but of these other things; that every home should have a sanitary privy, every well should have a pump installed in it and should be located at a proper distance away from the sewerage disposal system, so that the water will not be contaminated. In other words, every home should have a safe water supply and a safe milk supply and a proper sewerage disposal. If we have the proper sewerage disposal and safe water supply it is only a question of time before our typhoid carriers will be eliminated anyway and we won't have any danger from them. Dysentery, hookworm and these other diseases will also be eliminated when we eliminate typhoid.

You know, it was pointed out a long, long time ago that when you prevent death from typhoid fever you really save I think, about three lives from other causes. In other words, that twelve there doesn't represent the total saving in life in that community by proper sewerage disposal in the schools. It only represents a small part of it and I imagine that in Durham County when they installed proper sewerage in their schools Dr. Epperson also had sanitary privies put in all over the county. I rather expect that is an indication of proper sanitation all over that county. I am glad to see that Dr. Booker is taking this means of calling attention to the fact that we should have proper sewerage disposal in the state. He should do it through the schools and every health officer should back him up in getting proper sewerage disposal and a safe water supply for the schools. Also, along with that he should make those centers for education for the community, get your leaders and make a campaign to install proper privies and in a little while you will have a good many communities with proper sanitation.

Dr. R. S. McGeachy (Greenville): I would like to ask Dr. Booker a question. I don't like to put a monkey wrench in anything, but I have been in eastern North Carolina for thirteen or fourteen years and I can't get the idea out of my head that there is some danger of sewerage soil absorption in our country down there. In that quicksand and poor sand the water stands right on the top of the ground. To inspect one of the schools there, the sanitary inspector and I had to get in a boat and row 150 yards in that boat to the school building to inspect it. The wells there—you have to get in boats to get to them to get the water out of them. We have a spring there at Kinston—I don't know whether you have ever tested that or not. There is a spring down under the hills of Neuse river—a pipe running way up into the hill where as far as we can see not a drop of water can come in contact with the surface ground anywhere at all—and I have never in the ten years that I was at Kinston tested that water for bacilli, (there wasn't a pit toilet within 150 yards and there wasn't any way in the world for it to become polluted that I can tell you) without finding colon bacilli in one c.c. and ten c.c. Where they came from I don't know. I think down in eastern North Carolina these toilets should be put—I don't know how far away from a water supply—and you can't put them there because your water supply and your toilets and all must go within a space of 50 yards.

I'll admit that sometimes I have become skeptical about pit toilets down there where the bottom of that pit toilet is a foot or two below the water level anyway. As I say, I don't want to be pessimistic, I don't want to put any damper on anything. Fortunately I have never seen any evil results from it, but I don't know when it is going to happen. Just fortunately I have never had a case of typhoid fever that started all these germs permeating around. That is a whole lot better than nothing—the pit toilet. Of course it is a lot better but I would like Dr. Booker to take the responsibility of that at least so that I can say he said so.

PRESIDENT REGISTER: Any more discussion on this interesting paper? If not, Dr. Booker will close the discussion.

DR. BOOKER: Mr. Chairman, ladies and gentlemen: I want to agree with Dr. Davison most heartily except in one particular.

I don't think we ought to just have a school for these principals and superintendents but I think we ought to have a compulsory attendance provision on that school for those fellows. These janitors come and come willingly and they come out in great hordes. I have had the honor and privilege of addressing both the white janitors and the colored janitors and I give you my word of honor, if you ever saw anybody intensely interested in a thing it is these janitors. They are just drinking it in—anything you had to say to them in regard to the maintenance of their school, of their privies, of their water supply, of their wells, of any phase. You can almost feel them pulling at you to get more information, and they will hardly let you go after the lecture is over. I have had them stay on into their lunch hour to discuss their own particular problems at their individual schools. So I feel that the school for janitors which is being held at the State College at Raleigh for white janitors, and the school for colored janitors held at Greensboro at the A. & T. College are a wonderful success not only in instructing these janitors in how to use less coal but also in matters of ventilation, in matters of keeping their entire school plant on a more economical sanitary basis.

Dr. Hudson reminds us that the schools are little centers, the foci for spreading information to an ever increasing circle. I think we don't want to lose sight of that fact, gentlemen, because as sure as we make a move in the right direction in schools little Johnnie and little Mary are going to carry that back home to dad and mother. They have done that in your own case and you did it when you were boys. They will do it again today. If we get the right thing in the school properly maintained it makes it a great deal easier to get it properly installed, back home.

On the other hand, gentlemen, we have had this come up: when we broach the matter of putting in a sewerage disposal plant or privies, they say, something like you have in school? Not for us. That is a reproach on us and it hits us amidships, to have them put their fingers on the sore spot and that is the matter of maintenance. Just as soon as we get school janitors instructed we have let ourselves in for some more responsibility, to wit, maintenance.

Someone here suggested the matter of keeping closer tab on school sanitation through frequent visits of health officers and inspectors. That has been worked out very nicely in a few cases where the sanitary inspector has had time to check and score these schools. He puts them on a competitive basis. I believe in your county, Dr. Hudson, sometimes they publish a rating of these schools, rating them a certain percentage, and there is a little bit of rivalry there and those principals and those teachers in the schools are striving for the highest possible rating they can get, just

like your dairymen or hotels or anybody else strive for a higher rating for those hotels or dairies, or what have you.

Dr. Ford mentioned one matter to me privately. That was the matter of getting these schools properly constructed in the first place. It is pointed out in my paper somewhere the insurance department has given considerable authority with reference to matters of providing fire exits and things of that kind. So far as I know the State Board of Health or your county officials have absolutely nothing to do with any plans that may be proposed in your schools. You are seldom if ever consulted in regard to whether or not you think this would be an adequate plant for a certain school, an adequate number of rooms or the proper lighting or whether the drinking water is properly handled. You and nobody else has anything to do with that, and the only way we get anywhere with that is through the courtesy of the Department of Education.

I want to say this in their behalf: they have been very nice and coöperative with the State Board of Health and during this hectic period with the CWA and PWA they have come across manfully and I think practically every plan they had they rushed to us but these plans were gotten out in such a hurry and we were so overwhelmed and the demand was, well approve these plans quickly so I can get my appropriation before the PWA or CWA closes, that they simply made a rubber stamp out of it, to be very frank about it. Again we didn't have the men. We didn't have the personnel or the appropriation with which to go over these plans and to figure out reasonably definitely that they had enough window space for the amount of floor area or that they were having a reasonable seating capacity in that floor area. There is such a thing as having entirely too many seats in a given space and what crimes will be committed along this line I hesitate to think of.

We would like immensely to see some general provision made for handling schools somewhat, let us say, like the State prison. Formerly all the counties made their own arrangements about their prison camps and sorry things they were. Now the State Highway Commission and Public Works Commission handle these prisons in a very business-like way and they coöperate with us very very nicely indeed. Any of you or all of you that have seen these State highway prison camps and noted their means of handling their water supply and sewerage disposal, I daresay feel it is a disgrace to our schools to have prisons maintained in that sort of shape.

There is a case where we are able to coöperate with some central authority and we are getting somewhere. I have had a little secret hope in the back of my head that this school business was moving rapidly towards centralization. With centralization we would probably be able to get somewhere with school sanitation, we hope somewhat comparable to the sanitation in our prison camps.

That is one of my fond hopes. In the meantime, as I said before, they are not building very many new schools and for that reason we are not

making very many mistakes with our windows and spacing and seating. We are not putting in very many seats now, but I hope by the time we do become able to build more schools we can put in some more sewerage disposals and so forth and something better will be worked out whereby some central authority, whether it be the County or State Board of Health or someone else, may contribute a part, and supervise that sanitation in schools.

In regard to Dr. McGeachy's suggestion—I think Dr. McGeachy sort of answered his own inquiry when he said that so far as he knew no dire results had been obtained from putting this sewage in pit privies or in the ground. It is a matter, Dr. McGeachy, of the "proof of the pudding being in the eating." You are right, sir, in that there is a certain element of danger in soil pollution. I think it is generally agreed now that there is a great deal more danger in promiscuous soil pollution out there back of the bushes or around the corner where it is wide open and exposed to flies and chickens and pigs and dogs and domestic animals and children than it is if put in some kind of pit and there again comes in this question of school location. We have found places just like Dr. McGeachy refers to of schools located—it seemed to us that they have done their darnedest to put the schools in the worst possible position so that it is next to impossible to design a sewerage treatment plant that will work. They put it down on some low place instead of putting it up on a hill. There are nice building sites there but they are just not located there and in those cases we have everything Dr. McGeachy says about those pit privies or sewerage treatment plants located in low places of that kind.

Thank you! (Applause)

President Register: That finishes the program for this afternoon. Without objection we recess until 8:00 tonight.

. . . The session adjourned at 4:25. . .

MONDAY EVENING SESSION

April 30, 1934

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

The session convened at 8:20 o'clock, Dr. F. M. Register, President of the Association, presiding.

President Register: Unless we start our session now, I am afraid we will lose some of the members we have present.

Dr. Cooper has a few words to say, which I think will be of interest.

Dr. G. M. Cooper (Raleigh): Mr. President, Ladies and Gentlemen: There are but two announcements I wanted to present sometime during this meeting, and your President very kindly gave me permission to take up a few minutes of your time while we are waiting for the fellows to gather.

The first is that two or three years ago Dr. Northington, Editor of *Southern Medicine & Surgery,* asked me to edit a column in his journal, a monthly medical journal, under the heading of Public Health. I very carefully wrote the articles once a month for at least two years, but a few months ago I became so crowded I couldn't possibly get the time to write the kind of an article that ought to be put in a medical journal of that type, so I had to ask him to just let me suspend a little while. Sometime ago he wrote and asked me if I couldn't get some of the health officers to supply this column, and it struck me as a crackerjack idea because one of the chief problems that health officers have is to be understood by the medical profession, and to have a sympathetic, coöperative working agreement with the private practitioner. Therefore, I promised to take up this idea at this meeting and present what Dr. Northington had said.

I had in mind several fellows in this organization who could write a first-class article of anywhere between 500, 600, or 700 words each month, and if you will take that up and rotate it, I think it would be a fine idea. Romulus Carleton, Dr. Hardin, Dr. Bulla, and particularly Dr. Ford, could do this work to advantage. I know for I have seen enough of their writings to know that they could write the right kind of stuff, and the stuff this journal ought to have, so I hope you will get together before you leave here and make an arrangement whereby you will pick one man for next month, and so on, and send the list to Dr. Northington. I am sure it would be good stuff, and he would appreciate it, and it would do much good.

The next problem that I have that I want to take up is the matter of the franking privileges under the Children's Bureau Agency. Some years ago while the Sheppard-Towner Law was in effect, between 1922 and 1929, a part of that time, I was acting state health officer for about twenty-eight months, and we had an understanding under the Sheppard-Towner Law—nay, a definite agreement—by which we were allowed (the State Board of Health,) to stamp on a return to Raleigh to the State Board of Health—it could not be printed on there, but we were allowed to stamp it on. The Sheppard-Towner Law expired on June 30, 1930, and the Bureau at Washington recently wrote me that Dr. Collins, the special agent and head of the Bureau, had been notified that even that practice must be discontinued. The letter must have been lost because a few days later Dr. Collins died, and I never found any record of it when I took over the Bureau in 1931. A few weeks ago I had a letter from the Children's Bureau, including one of these cards—this is just a sample of a dozen different cards we use; this one to a mother, along with the record of the reported birth of a baby, and this was to be franked back to the Raleigh office and collected for certain information they want—a red hot letter, telling what sort of penalty we would incur by sending these out franked. This was sent from the Postmaster General himself, and so the fat was in the fire good and proper, and we were notified immediately to cease and desist.

The only permission they give us now is to mail their own publications in a franked envelope that they provide us with at the office at Raleigh. We can't even stamp on there "Return to Raleigh" and we can only mail their publication under my own name as special agent representing the Children's Bureau, or in the case of more bulky literature sent to health officers they supply us with a label that I can get franked, but the rub comes in there that we cannot put in that package anything except what they provide us with.

I have been able so far to get 250 to 500 envelopes a year. In other words, we formerly sent out something like 1,000 a day, so you can see what we are up against. I wanted you fellows to understand this, that for the present they refuse to supply us with any more envelopes. I am sorry about it, but if we can work out a better arrangement, and get a little more concession from them some time later on, I will notify everybody about it.

That is what I wanted to put before you. Much obliged to you, Mr. President, for the time.

President Register: The first speaker on the program is Mr. Taylor Attmore. Dr. Ford will introduce the speaker.

Secretary Ford: Mr. Attmore is a member of the Equalization Board. He is very much interested in public health, and especially the health of the school child. I don't know just what he is going to speak about, but I have heard him speak on a number of occasions, and he has a great deal of meat in what he says. Sometimes he steps on people's toes, but if you get your toes in his way, you can expect that. What he will say will be worth listening to and have an important bearing upon the relationship between educational departments and our public health work. Mr. Attmore! (Applause)

Mr. Taylor Attmore: Mr. President and Gentlemen: I don't know why I am here. Dr. Ford asked me if I would come up here and talk. He didn't tell me what he wanted me to talk about, and I don't know what you folks want me to talk about, so I don't know exactly what to say to you.

My experience with doctors dates back quite a long time for my father was a country doctor down in the malarial part of eastern North Carolina, and I grew up in his buggy going around with him. I spent the early part of my childhood almost entirely with him because I was so cussed mean he couldn't leave me home with the rest of the children to bother my mother.

I have seen the problem of public health from many angles, riding around with an old practicing physician. Make no mistake about that.

When I was twenty-two years old for some reason or other I was appointed on the local school committee in the community in which I live, and elected as county superintendent after about a year and a half in that position. I think that my record is probably different from almost any

man in the state who has ever been promoted to the position of county superintendent of schools. Here I was in a one-teacher district school, and I was promoted from that position to county superintendent of schools, and never having taught school a day I tackled a pretty big sized job.

In addition to that, unfortunately I had to quit school when I was twelve years old, so I have but very little academic education. Since I was twenty-two years old until tonight I have been a member of some school board or school commission in some capacity during all that time except for an interval of three years, and for a great deal of that time I served in two or three different capacities on different types of educational boards.

I am forty-six years old. I have a total membership of thirty-five years and a little more in the educational line, and being susceptible to things like a boy is to meales I have caught something during those thirty-five years about the administration of public schools. I am frank to tell you, and glad to admit it, that there are a great many things about it that I don't know, and never will know.

Three years ago I was appointed a member of the State Board of Equalization, nominated by the Governor, and approved by the Senate of course; and when that Board was abolished and the State Commission created I was asked by Governor Ehringhaus to serve as a member of that Commission from First Congressional District.

I don't suppose in the history of North Carolina that any group of men have ever tackled a more undesirable job, and one that looked as if it were impossible to achieve than those men who were associated with me as members of the State School Commission, undertaking to provide an eight months' term of school in North Carolina for its 850,000 children, and to try to operate these schools on as high standards as they had been operated on, with the total available appropriation of $16,000,000, when for an eight months' period of school the year before had been spent approximately $24,000,000. In addition to that, we had to provide eight months for almost 200,000 children who had never had but six months before.

We could not figure how on earth this thing could be accomplished, but with the advice and counsel and diligent work of our very efficient executive secretary, Mr. LeRoy Martin, and with the whole-hearted support of the one hundred county superintendents and about sixty superintendents of city administrative units in the state we have been able to keep the schoolhouse doors open in North Carolina for the entire term for the children, provide high school instruction for about 15,000 children who did not have that opportunity last year, and give to all of the children of the state the full eight months' term, pay all of the cost of operation, pay the teachers what we had agreed to pay them, and we can go out at the end of the year with a cash balance of $46,000, provided we buy no more truck replacement items.

You have read in the papers where we expect to get from the National Government $500,000 to help pay the teachers in North Carolina. We have enough money to pay them on the present schedules, but under this program at Washington, where they are aiding so many states, our state is entitled to something too. Due to the fact that in our first set-up of funds we didn't allot as much as we should have to any of the different funds in order to complete the year, we could qualify, and will get from the National Government the $500,000.

We have also asked them for $180,000 on a new truck program, and we expect to get that. Due to the fact that we have a possible cash balance of about $46,000, we are going out at the end of the year and buy between now and the first of July from 800 to 1,000 new school buses to put on the roads in North Carolina to haul these children next year.

I do not like to burden you folks with many figures, but I know that you are particularly interested in this because you are so close to the teachers in your work and can explain so many things to them. You know, and I know, that next year it will require more teachers in North Carolina than it has required this year, due to our ever increasing population and due to increased interest on the part of parents throughout the state to keep their children in school longer. We could not provide next year probably the same type of schools that we have been able to have this year until and unless we could secure some money through some other source. Now our hope for securing this money for next year in order to take care of these additional teachers, which we will have to have—and it should be 500 to 1,000 additional classroom teachers next year—we have spent this year up to April 6 $1,212,552 for paying the cost of transporting children in North Carolina. We have bought $160,507 worth of new equipment this year. It will take approximately $75,000 to continue to operate these trucks from the 6th day of April until the close of school. We feel that with the increased number of school buses which we will have next year available to us, we will be able to reduce the cost of this transportation approximately $40,000 and thereby take care of those additional teachers for next year.

The thing that has puzzled North Carolina quite a bit this year, and has worried a great many of the same class of people whom you and I represent, is the fact that our teachers were supposed to receive as small salaries as they are receiving. I would like to say to you that we are going to pay the teachers and superintendents in North Carolina this year approximately $13,400,000 of the $16,000,000 that is set aside to operate the schools. We feel in paying that much for instruction out of this fund, that we have done a job that we are very proud of. We don't care whether anybody else is proud of it or not. But our chief difficulty, as I see it, through all of these years of association and work in schools, is the fact that the actual classroom teacher has not received the proportion of the money that she should have received in the state for her services. We have had too many things that have had to be paid for out of public school

funds besides the classroom teachers. Now there is a howl from one side of this state to the other about the amount or the smallness of the amount that is being paid our classroom teachers; and I want to say tonight emphatically that I have never felt, and I don't think that I ever will feel, that the salaries that we pay our teachers is nearly enough, but after being in touch with the amount of money the teachers have drawn in other states, we feel that we have done fairly well in this state, particularly when we know that we started this program last year at a time when North Carolina was "busted" wide open, and when our lawmakers and tax-gatherers felt that we could go hardly another inch. While our teachers are not receiving the pay that we should like them to receive, they have been able to draw their money at the close of every month's school, every dollar that was promised them, and if it were not for the fact that this program has come through from Washington they would have been paid their last month's salary the day their schools closed, but in order to draw this $500,000, it has got to be paid to teachers who have no other means of support. Where a man and his wife are both teaching, you can't pay but one of them from that fund, and it is going to take several weeks to work out this schedule of dividing those $500,000 up. If we could receive that money direct from Washington as a reimbursement for the money that we paid out of the State Treasury, these teachers would be paid off the day that their schools closed.

In some of our adjoining states teachers have been promised salaries larger in some instances than we have promised them in North Carolina, but they have had to get out and trade their vouchers off for all sorts of commodities and sell them at reduced prices and do things along that line in order to get their pay at all. After being in touch, as I said a moment ago, with the way other states have settled with them, I feel we have done a job here in the state that the teachers, themselves, appreciate and ought to be proud of.

Of course, there are quite a number of superintendents in North Carolina and some teachers too that have hammered along on the fact that they have just been literally starved to death and mistreated and various things along that line, but the program has been safe and sound. Now your School Commission feels this way about it: Our course is justified because public education in North Carolina in this great financial crisis which we have had to face has not had a setback, but it has gone forward. Ever since Aycock became governor of North Carolina and commenced to stir up this program of public education in this state, there has been a constant trend of thought and effort from one side of our state to the other for a uniform eight months' term of school; and here in this period of depression we accomplished it, when we had never been able to do it through the years of so-called prosperity. In this period we have made provision for just thousands and thousands of children to have high school advantages that have never had such an opportunity before. We have wiped out in the state almost 1,500 one and two-teacher schools and have

started a program where those children are going to be able to secure a fair education all along with the children of the better communities of North Carolina. Therefore, with that accomplishment in this period of depression we feel like the state has turned its pages forward in its educational program regardless of the fact that the teachers in a great many instances are not satisfied with the pay which they are receiving, and you and I also are not satisfied.

Your Commission has had before it the law of North Carolina to follow. There have been a great many things that we have had to definitely decide to do which did not agree with the heart and the mind of the members of this Commission. I was shocked two years ago in analyzing the Public School Law to find that there was an amount of money equivalent to ten cents per child set up in it for public health in North Carolina; but written along with all of that was the restricting clause that we must not reduce the salaries of the teachers of North Carolina below 10 per cent of what was paid the year before. When you analzye the situation, you can readily see it is impossible to do that and to provide the 10 cents per child for public health.

This year, if you will scrutinize that law, you will find there is no provision in there for aiding any health program. The whole intent of this law, as we saw it, from start to finish was to keep the classrooms open and sacrifice practically everything else, eliminate every other possible cost to keep those children in school 160 days.

I am sold on public health. I never have felt that the purpose of the public schools of North Carolina should be for scholarship only. I feel that the doors of the public schools of North Carolina ought to be open for the children to go to, to advance their scholarship certainly, but I feel that the schools ought to be a clearinghouse too, providing that when a child goes there that he can come out not only improved in scholarship but can come out physically safe, mentally safe and morally safe. Under this program that we are working under now, the physical end of it as you all know, and as I know too, has been seriously neglected. It was impossible to take $16,000,000 and spread it over any wider range than we have spread it.

As to the men who constitute the State School Commission, you gentlemen perhaps know most of them personally, and I presume somebody here knows each man that is on that board, but I can say for those men that they are men who love North Carolina, and they believe in public education. They believe in every child having an opportunity to go to school. They believe in the state doing for all of its children everything that can be done for them. They have given of their time and their talents in order to work out this program this year on such a restricted basis, because to reduce a cost from approximately $24,000,000 to $16,000,000 was a task that looked as if it could never be accomplished. They have done their very best, and they have handed it back to the state at the end of the year, hoping that the state will approve the policies which we have adopted.

Several days ago we had a meeting of our Commission. There was before it a request from quite a number of you gentlemen to use the school trucks for taking these children to pre-school clinics. God bless you! I believe with you it ought to have been done, but we didn't have the money to pay for that to be done a bit more than we would have money to pay for it when the agricultural teachers wanted to take the trucks and bring students in agriculture over to a state test farm to see the fruit trees pruned and to study how that was done; nor a bit more than we did for the agricultural teachers to take their boys in agriculture down the road to study the work that some good farmer was doing down there, and hundreds of other things that I might mention.

This Commission realized two years ago that if we were going to continue to operate school trucks in North Carolina with the amount of money we had to do it with, we had to restrict their uses to day sessions of school only.

I approve of public health programs. My first experience as a county superintendent of schools occurred the second day that I undertook that job. I went to a small school down on Goosecreek Island, in Pamlico County, where my friend, Dr. Dees, over there started his life's work as a teacher. When I walked into the classroom I found about forty children in there, and most of them were crying. The International Health Board was putting on a program in that county back yonder in 1913 of eradicating the hookworm. Dr. Strosnider was in charge of it. They had heard that in this work in the adjoining counties they had killed four people, and when they saw me tie my horse out there one of the kids said, "Yonder comes that doctor, and he is going to kill us." That was my first experience in public health work in the schools. I went in there, and after they found out that the big bad wolf hadn't come it was not quite so bad; but I followed Dr. Strosnider's work in that county. He was down there to work for two or three months when I undertook this job as county superintendent of schools, and I became vitally interested in public health work.

We had more deaths in that county occur due to malaria in those days than any other one factor. Why 95 per cent of the work that my father did as a practicing physician for fifty years in the same office in that county was to try to keep people from dying with malaria. The North Carolina Land Owners Association, with headquarters in Wilmington, about 1915 or 1916 distributed a lot of literature in an effort to inaugurate an anti-malarial campaign. I don't know how many other counties became interested, but I distributed those bulletins to every child in my county because I knew that was the thing that was in the way of health conditions more than anything else in our section.

A little later we had started down there this anti-malarial campaign by the International Health Board. Dr. Tayloe was put in charge of it over a township and a half. I gave up my work as superintendent of schools for weeks and weeks and went with him to home after home and school after school and caused those children and those people to be

willing to have blood smears made in order that this investigation might be carried out. I aided that work in every possible way that I could.

A year or two after that Dr. Cooper's nurses came down to examine the children for tonsils and adenoids, and they reported that none were good, not one hardly. We staged the usual campaign for the tonsil and adenoid clinic. I laid my work aside as superintendent of schools to help that program. Pamlico County was the first county in North Carolina that had their children operated on, one hundred of them, isn't that correct, Doctor? Those nurses found a tremendous percentage of the children that had enlarged tonsils.

The following March Dr. Tayloe in his efforts to eradicate malaria came to me and mentioned five or six children that he could not clear of malaria until their physical condition was better so they would be able to throw it off. He said that the treatment that he could give them would probably help, but would be of no avail unless they had their tonsils and adenoids out. He told me I was the only man who could cause those children to be operated on, and if I were to get behind it, Dr. Daniels had said that he would operate on the children free of charge.

I said, "How about operating on all that need it?"

He said, "I think Dr. Daniels will do that."

I replied, "I will get behind it. Suppose we have a big clinic here. You get the facilities to have them operated, and I will furnish the kids."

"I don't know whether the International Health Board will agree to that."

"I am going to be in New York next week, and I will go down there and talk to the men in charge and see what they say about it."

I went down to see Dr. J. Cox, and he said it would be all right, and perfectly agreeable to them to have Dr. Tayloe do anything I could get him to do. I came back by way of Raleigh and borrowed a nurse and a hospital outfit. We used the courthouse for our clinic, and we poured children through there for three weeks in March. The educators said I was playing the devil with the schools, taking kids out of the classroom to have them operated on. I didn't mind that, as long as they were physically fit. I knew what a strong body means. I did that without any reward or hope of a reward, volunteered my services, and we operated on 200 or 220 children in three weeks. I am stating that to show you my record on public health.

Now I am going to come around to something else. I think that we are seriously and grossly in North Carolina neglecting the physical welfare of our children. It is needless for me to come and tell you people that because you know it better than I do. The business men in this state are so busy thinking about their own affairs that they do not realize this great neglect that we have in our state that affects the health of our children in the schools. I know we ought to have money to promote public health, and I know something else too: when I look you men in the face I am looking into the faces of the shrewdest bunch of politicians in North Carolina.

Any group of men or any man that can serve as a health officer in the average county in North Carolina, and get by with it, is a better politician than I am, and I think I can draw rings around some of them. However, I will pull my hat off to the men who are health officers because you have got Mr. County Commissioners and their brothers and sisters and uncles and aunts to deal with. You have got the physicians in the county to deal with, and you have got the hospitals to deal with. You have got the anti-tax folks to deal with, and you have got the crowd to deal with that are mad because you have not hired some of their folks to work in your office. How in the world you can stay in your jobs and do any work, I don't know, but I do know you are a darned good bunch of politicians to stay there at all. (Laughter)

Here is where I am going to quarrel with you a little. You men know more about the need for public health in the schools of North Carolina than any thousand men in the counties in which you work. You have been working on this program of child health in the state for years and years. It has not gone as far as it should have, and if it weren't that I wanted to be particularly polite tonight I would say that it has not gone far, but I don't want to be impolite so I won't say that. Our difficulty concerning it is because we have not gotten it financed. There is your trouble.

If I were going to picture a program that I would like to sponsor if I were a member of the State Board of Health in North Carolina, it probably would not be agreeable to you fellows as health officers. I am not thinking tonight, and I never have thought, that the schools of North Carolina should be considered for the teachers of the state, but for the common child of North Carolina. Also I do not believe that a health program ought to be considered for the State Board of Health or the county boards of health, or the county health officers, but for the common good of the children of North Carolina, when we are thinking about child health in North Carolina.

If it is going to be the policy of the State of North Carolina to operate the public schools from a state-wide standpoint, financed by North Carolina as a whole and administered by a group of men to be appointed by the Governor of this State, then I think there ought to be written into that law a definite amount of money to be spent for child health. If they are going to spend $16,000,000 for the schools, I would say at least $400,000 for medical inspection in the schools. You may not agree with me in what I am going to say, and I don't care whether you do or not, but I think whoever receives that $400,000 for services rendered should be employed by the County Boards of Education, trustees of the city administrative unit wherever they might work, with the approval of a state health officer, who I think should be a member of the State School Commission, and paid from public school funds, and answerable to the folks who are paying them. I think that that program ought to be tied up together. I think the ones who are working in the schools should be employed by the schools and paid from the general fund. If I were going to be a member of the

General Assembly of North Carolina, such a program as that I would stand for and work for because I don't believe in the idea of all scholarship and a weak body. I stand before you tonight a man who has lived under a great physical handicap because of the lack of medical inspection in the schools; and I know it. When I was a child I attended a school and had the privilege of sitting in front of three great big windows on the south side of the building, and I went blind in my right eye and almost lost the vision in the left. I was told I would have to leave school at twelve or go blind. I stand tonight with less than 10 per cent vision on account of that. I look up here and see all these surveys you have made of sewage and water, etc., in the schools, but I would ask you men when you go out this year for God's sake see that the child of North Carolina is properly seated in a classroom so that the light won't make him go blind. There are many other men who could come up here and tell you of physical handicaps they have had because the schools were not inspected by men who knew how to provide the right kind of water supply and other sanitary conditions, sewage disposal, etc. There are many who have suffered all their lives as a result of that deficiency. It is going to take money, my friends, to put these things in the schools where they belong and ought to be, and I have no quarrel with the last General Assembly for wiping out of the school law the possibility of spending any money for anything but actually teaching the children in school, getting them to and from school, keeping them warm, etc. But we must not let their program go on without more money being added so that our children may not only have scholarship but may have physical comforts as well.

I don't know why you people asked me to come here from two hundred miles away to make this talk. I am very grateful for the opportunity to talk to this body of men, the people I recognize as doing a wonderful work for the children of this state. I have come here a long distance to be with you, but it has been a pleasure to come, and if it has been worth while to you it certainly has been to me to spend this evening with such a delightful group of people.

I thank you very much! (Applause)

President Register: Mr. Attmore, this Association thanks you very much for the splendid address you have given. It is certainly illuminating and enlightening.

We have a little time now. I wonder if anybody wants to ask Mr. Attmore any questions.

Dr. John Symington (Carthage): I was very much impressed with Mr. Attmore's address. He stated one thing that interested me, and that was that the light in that school affected his eyesight. There is a gentleman in Carthage in this county who says that he would have given $10,000 or ten years of his life if the medical examinations now given in the schools had taken place in his day; that he is suffering from a defect that has affected him for his whole life since his childhood because it was not corrected when he was a child in school.

DR. E. R. HARDIN (Lumberton): I enjoyed Mr. Attmore's presentation very much. I think he sees this thing from a public health angle the same as we do. I don't know how the other public health men feel about it, but I do feel that even in times of stress North Carolina has not slackened so much on her road-building program, and they can still find the money to finance public roads. The Lord knows I believe in good public roads as much as anybody else, but you know as well as I do that we have a great many hard surfaced roads in North Carolina that parallel one another and are not so far apart, and we might have waited fifteen or twenty years longer. As I say, we are continuing to build roads right now, yet we can't spend ten cents per head in the public schools to take public health measures and put in the proper sanitation in our school buildings, which are actually a disgrace to North Carolina.

Of course, I don't blame the School Commission for that because they can only do what they are supposed to do by law, but I was one of those who made the request recently to the School Commission that the school buses be permitted to bring the mothers and children to the pre-school clinics once a year for examination by the health officials. I have learned from experience that if this is not done we are only going to get a very small percentage of those children there, and of those we do get the mothers in the majority of cases will not be with them, so we can't give them the findings and therefore nothing will be done about it.

I feel this work is fundamental if any work is fundamental. We are trying to prepare those children for schools to eliminate a good many of these defects before they enter school, and I do feel that the small expenditure for this purpose once a year would not have amounted to a great deal. I believe they made a mistake in turning down that request.

SECRETARY FORD: I would like to take the part of the Commission. Of course, they are bound around with regulations and money restrictions and restrictions of all sorts, and have all sorts of requests coming to them both intelligent and unintelligent, prejudiced and otherwise, for special changes in each part of the state. In one place, for example, they did not want the school moved because it was near to the cemetery and the children would have to go too far to attend funerals if it were moved.

What Mr. Attmore didn't seem to understand was that we have been making these physical examinations of school children over and over again with a complete record in each case covering every white child, and in some counties the colored children, even having them transferred if the child left that school and went to another one. The thing is we can't get anything done to correct the defects after we have the records. We cannot get anything done in the way of eradication of physical defects. Most of the tonsils should have been out long ago. The eye conditions of so many of the children are shocking. I can pick out one here and there living in a fog all their lives, who have never seen the beautiful things of life, the beautiful flowers and leaves, yet we cannot get the parents to realize it and give those children glasses at the cost of the glasses. They

won't even pay for the glasses themselves, partly because they are in some cases ignorant and partly because they think if they hang off long enough somebody will give them the glasses.

Then, of course, there is the sanitary condition of the schools. What I was particularly going to speak about, is there anything in sight for repairing these schools so they can have better lighting, better benches, better facilities for drinking water, etc.? Of course, the sanitation is only a small part of the problem (indicating the charts on the wall).

For example, look at the money that has been spent in the past in Craven County after the schools were built. Enormous amounts of money had to be spent afterwards to drain the place. There was a contract let to build each school, and it was let on plans made and approved by the State Board of Education. The contract, however, contained no mention whatsoever as to sanitary facilities or water supply. Money was spent on the contracts and more money had to be put into the means for sewage disposal and heating, etc. That part of the building of the school that had to do with the comfort of the children was never thought of when the school was first built on plans approved by the State Board of Education. Then in Beaufort County there was no provision made there for the health of the children. They never thought of it when the school was being built, so afterward it had to all be changed. There at Belhaven in one school—I don't want to be personal—it was a big school, yet all the small children were put in the basement, where all the windows were way up, and even in the daylight on an ordinary day it would be necessary to have the building lit up, not to speak of a cloudy day. All the drinking water comes through one pipe in that school for 600 children. They can't all get a drink in one day unless they do it during the school sessions because the school teachers tried to do it last fall. What I mean is, are the people who are supplying these plans for the schools, are they planning any way to provide better conditions for the children in the future? I don't suppose you know of any plans, but are they thinking of making school repairs and changes like that? Have they got to come from the County funds?

Mr. Attmore: Yes.

Secretary Ford: I suppose counties are like individuals. You know, the more charity you give to the average human being the more he expects and the more he will lay down. The more the counties get from the state, the less tendency there is going to be on their part to do any struggling for themselves. I was hoping that by getting Mr. Attmore here we could explain to him our point of view as a group rather than our personal feelings, and we would know his point of view as a member of the Equalization Board. I think he has told us his point of view fairly well.

Thank you!

Dr. R. S. McGeachy (Greenville): At the meeting we had this afternoon we had much to say about excluding children from school in sickness. It looks to me like in justice to the teachers some provision ought to be made for the teacher that is sick. As it is now, they feel they cannot afford

on the small salary they get to stay home. Every bad cold and flu they come down with, they continue to go to school, and while there will infect children. Every state employee is entitled to ten days sick leave, and it does look to me as if the teachers are entitled to some arrangement if we possibly can give it to them. I don't know that it can be done now, but some arrangements should be made whereby a teacher who is sick could be excluded just the same as a pupil would be. I just wanted to bring that to the attention of Mr. Attmore.

I have heard Mr. Attmore speak before. He came over and talked to the Kiwanis Club at Greenville. He gave us an excellent talk, and I will say this much in his behalf: he is very much interested and is doing everything in the world he can for our territory. He represents our section of the state, and he is doing everything that he can in the interests of the schools of our communities.

Of course, we all know, Mr. Attmore knows and Dr. Ford knows, and everybody else knows, that the sanitary conditions in some of our schools are far, far below what they should be. You all heard me talk a whole lot this morning about the toilets in the country school, or one of them, that was built to accommodate a population of 200, and they have something like 500 now using those same facilities that were built for 200. It is right in the center of a town. It is a school that is built right square in the center of the residential section of a little community. There are more houses right around and adjacent to that school building than there are in the same territory in any other section of the town; but still those toilets that were built for about 200 are now trying to accommodate 500. There is one pump out in the yard that one child has to pump while the other child drinks water. That is the conditoin in that school.

We have worried, we have pleaded, we have begged, and we have argued for money this year from the CWA and every other agency we could think of, but we have not had a thing done yet. That is not the only instance. There are other schools, two or three of them, consolidated schools, way up in the four or five hundred enrollments with nothing in the world but one pump in the yard to accommodate from four to five hundred children, and toilets that are built to accommodate just about half the population. (Applause)

Dr. Romulus L. Carlton (Winston-Salem): I want to thank Mr. Attmore for his very excellent talk. I think he gave us a new viewpoint as to some of the problems of the educational people; but I don't believe health officers are as good salesmen as they are politicians. I think that when the appropriating bodies want money for a certain purpose they usually find it. Up in my town at the end of a mouth health survey some of the dentists reported that they found quite a number of cases of trench mouth. Finally they got that word around to the appropriating members of the board of aldermen, and after a long and tedious discussion we got $500 for a piece of special work to clear up trench mouth.

A few days later sleet came along and tore up our trees, and it didn't take any argument to get $2,500 out of the same board, whose money was already exhausted, to repair the trees. The tree surgeons worked on that job for a month, and they went back and got another $1,000, making the sum of $3,500 appropriated for this purpose, and they got it the same night they applied for it. So I don't think we are as good salesmen as you think we are politicians. I think it is largely our own fault. (Applause)

. . . Mr. Attmore asked to speak off the record. . .

PRESIDENT REGISTER: Has anybody else anything to say? If not, we will go to new business. Is there any new business? I suppose that will take care of the resolutions. We will now hear from the Resolutions Committee.

DR. ROY NORTON (Rocky Mount): Your Committee desires to make the following report:

The Public Health Association deeply regrets the inability of Dr. J. M. Parrott, our efficient and congenial secretary and health officer, due to illness, to attend this annual meeting. The Association hopes for him a rapid and complete recovery. The Secretary of this Association is instructed to send to Dr. Parrott a telegram conveying this message.

I take it there is no objection to that, or any amendments or suggestions for change. I believe we all would want to do that.

DR. R. S. MCGEACHY (Greenville): I am not going to get up again, but I heard late this afternoon that Jim Parrott asked the privilege of coming down here and registering and going right back home; that this would be his first session or first meeting of the North Carolina Medical Association that he had missed in 37 years. I think that is a record that hardly any of us can equal.

PRESIDENT REGISTER: We will send a telegram anyway.

SECRETARY FORD: I have already sent it. I sent it at five o'clock this afternoon.

DR. ROY NORTON (Rocky Mount): The Association goes on record as favoring the recommendations of minimum prenatal care as proposed by the committee of practicing physicians and officials of the State Board of Health, which recently met to study methods of reducing infant and maternal mortality in North Carolina.

The Association requests that the meeting of the Section on Public Health and Education of the State Medical Society be scheduled to meet on the day following our annual Public Health Association meeting, rather than having it on Monday, and then the Section on Public Health on Wednesday afternoon as it is this time.

The Association requests that the State Board of Equalization not penalize a school, in preparing the budget for the following year, on account of loss of time of children from quarantine during an epidemic of communicable disease such as measles or whooping cough.

We request also that the use of school buses be permitted to convey children to the pre-school clinics for examination and immunization.

The Association favors the formation of a Division of Public Health Nursing in the State Health Department under a competent registered nurse, trained in public health nursing work.

We wish to thank the hotel officials for courtesies and privileges extended to the Association.

(Signed) Roy Norton, *Chairman,*
J. C. Knox,
A. C. Bulla.

. . . The resolutions were unanimously adopted. . .

President Register: Is the committee on President's Address ready to report?

Dr. R. M. Buie (Greensboro): Your Committee wishes to congratulate the President of the North Carolina Public Health Association on the courageous stand he takes and the forward-looking program he outlines in his address on the future public health policies of this state. We wish at the outset to express our regret that our President, Dr. F. M. Register, an able health officer of many years, has left the field of public health work for other activities, and we wish for him many years of success and happiness in his work.

Your Committee agrees with the President on the whole as he emphasizes the importance of education as the primary factor in this movement.

We, too, think a "new deal" is needed in many respects; that incompetent midwives should be eliminated; that measures to lower maternal and infant mortality should be extended; that all possible means of educating the public regarding health be utilized—newspapers, bulletins, lectures, radio and the like.

We believe no stone should be left unturned in telling the people and we believe also in showing them, if possible.

Your Committee is fully agreed that the ideal toward which we should strive would be to follow our President's suggestion that the health workers do nothing except education, leaving off all immunizing work, all clinics, etc., but we do not believe that such a program can possibly be put into effect on a practical working basis at this time or during our generation.

Health workers do not desire to practice medicine as curative medicine, but your Committee finds it very difficult to draw a sharp line of demarcation between curative and preventive medicine. We do believe in throwing a little water on the fire before the fire department reaches the scene if possible, and we do believe in doing those things which will save some mother's child—if that means the administration of a few doses of vaccine or other immunizing agent to children who otherwise would not get such preventive treatments, then we are heartily for such procedure.

On the other hand, if the time comes when appropriations are made available for taking care of all preventive treatments in the private physicians' offices and the health educational programs convince our people they should get all these treatments from private physicians, then your Committee will be for that procedure.

Our conclusion is that the President's address means that there must be entire frank coöperation between the family, the health officer, and the doctor, and no one knows which one of these should be mentioned first.

(Signed) R. M. Buie,
E. R. Hardin,
R. L. Carlton,
Committee.

President Register: Is there any dissenting voice from that resolution? If not we will consider it passed.

Are there any other committees?

Dr. E. R. Hardin: Your Committee, after due deliberation, desires to present to this Association the following nominations:

President: Dr. Z. P. Mitchell
Vice-President: Dr. R. S. McGeachy
Secretary: Dr. G. F. Reeves

(Signed) E. R. Hardin, *Chairman,*
A. C. Bulla,
Z. V. Moseley.

. . . The committee's report was approved. . .

. . . Dr. Mitchell was escorted to the Chair amid applause. . .

President Register: Dr. Mitchell, it gives me great pleasure to have you succeed me.

I want to present to the North Carolina Public Health Association a gavel that was made down in the Caswell Training School. It was carved there also. Is is made from an oak that grew very close to Governor Caswell's tomb. I will put this in the care of Dr. Mitchell, and he can turn it over to succeeding presidents. (Applause)

President-elect Mitchell: First of all, it gives me delightful pleasure to be able to accept the presentation of this gavel from Dr. Register.

I am afraid you folks have made a most colossal mistake in electing me president, and this also applies to the Nominating Committee.

I appreciate this honor, and at the same time I feel keenly, profoundly so, the responsibilities that come with this office. With your help and support I will do my very best to carry this burden that has fallen on me.

I think we ought to have Dr. Reeves, the newly appointed secretary up here.

Dr. G. F. Reeves: Dr. Mitchell said he believed we made a colossal mistake in electing him. I know darned well you did in electing me. I hope to carry out the work that has been assigned to me, as well as it has been carried out in the past. I am just here to be called on by each member of the Society for anything that the Secretary and Treasurer is supposed to supply, and I hope to keep the Society from going in the hole thirty-seven cents, is that it, Dr. Ford?

President-elect Mitchell: The Vice-President will come forward, please.

President-elect Mitchell: Is there anything else to come before the Society?

Dr. R. S. McGeachy: I move we adjourn to the House of Delegates.

. . . The meeting adjourned at 9:35 o'clock. . .

ALPHABETICAL LIST OF FELLOWS FOR 1934 WITH POST OFFICE ADDRESSES

Name	*Address*
*Abel, J. F., (Hon.)	Waynesville
Abernathy, H. N., (Hon.)	Charlotte
*Abernethy, Claude O.	Raleigh
Adams, Edw. E.	Murphy
Adams, J. L.	Asheville
Adams, J. R.	Charlotte
*Adams, L. C.	LaGrange
Adams, N. B.	Murphy
Ader, O. L.	Walkertown
*Alexander, G. T.	Thomasville
Alexander, James M.	Statesville
Alexander, Jas. R., (Hon.)	Charlotte
Alexander, M. Janet	Montgomery India (Mecklenburg Co.)
Allan, William	Charlotte
*Allen, Chas. I.	Wadesboro
*Allen, G. C.	Lumberton
Allen, Jos. A., (Hon.)	New London
Allen, M. H.	Cramerton
*Allen, Sylvia	Charlotte
Allen, W. O.	Hendersonville
Allgood, R. A.	Fayetteville
Alyea, Edwin P.	Durham
*Anders, McT. G., (Hon.)	Gastonia
Anderson, Chas. A., (Hon.)	Burlington
Anderson, L. L.	Madison
*Anderson, R. S.	Rocky Mount
Anderson, Thomas Eli, (Hon.)	—Statesville
Anderson, W. B.	Durham
Anderson, Wade H.	Wilson
Andrews, John M.	Lexington
Angel, Edgar	Franklin
Angel, Furman	Franklin
Anthony, J. E.	Kings Mountain
Anthony, W. A.	Gastonia
Archer, Isaac J.	Black Mountain
*Armstrong, C. W.	Salisbury
Ashby, E. C.	Mount Airy
*Ashby, J. W.	Raleigh
*Ashe, J. R.	Charlotte
*Ashcraft, J. E., (Hon.)	Fayetteville
Ashford, Chas. Hall	New Bern
Ashworth, B. L., (Hon.)	Marion
*Ashworth, W. C., (Hon.)	Greensboro
*Averitt, K. G., (Hon.)	Cedar Creek
*Avery, E. S.	Winston-Salem
Aycock, F. M.	Princeton
*Aydlett, H. T.	Greensboro
Aydlette, Joseph P. (Hon.)	Earl
Baier, Geo. F., Jr.	W. Asheville
*Bailey, C. W.	Rocky Mount
Baird, C. A.	Mt. Airy
*Baker, Horace M.	Lumberton
Baker, J. M., (Hon.)	Tarboro
Baker, W. E.	Arden
Bandy, W. G.	Lincolnton
*Banner, A. C.	Greensboro
*Banner, Chas. W., OALR, (Hon.)	—Greensboro
*Barbee, G. S.	Zebulon
*Barefoot, Graham B.	Wilmington
Barkwell, J. H.	Weeksville
Barnes, J. T.	Asheboro
Barrett, H. P.	Charlotte
*Barrett, J. M.	Greenville
Barron, A. A.	Charlotte
*Basnight, Thos. G.	Stokes
Bass, H. H., (Hon.)	Henderson
Bass, H. H., Jr.	Henderson
Bass, Spencer P.	Tarboro
Battle, Ivan P.	Rocky Mount
*Battle, John T. J. (Hon.)	Greensboro
Battle, N. P.	Rocky Mount
*Beall, L. G.	Black Mountain
Beam, H. M.	Roxboro
*Beam, R. S., OALR	Lumberton
*Beasley, E. B.	Fountain
Beckwith, R. P.	Roanoke Rapids
Belk, Geo. W.	Gastonia
Bell, A. E., (Hon.)	Mooresville
Bell, Carl W.	Raleigh
Bell, F. O.	Burlington
Bell, J. C.	Maysville
*Bell, G. E.	Wilson
Bellamy, Robert H., (Hon.)	Wilmington
Belton, J. F.	Winston-Salem
Benbow, Edgar V.	Winston-Salem
Benbow, J. T.	Winston-Salem
Bennett, A. McD.	Bryson City
Bennett, E. C.	Elizabethtown
Bennett, Jos. H.	Wadesboro
Bennett, P. R.	Bryson City
Bennett, W. L.	Bald Creek

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Benson, N. O.	Lumberton
Berry, John	Greensboro
Berryhill, W. R.	Chapel Hill
Best, D. E.	Goldsboro
Best, Henry B.	Wilson
Bethune, A. C.	Raeford
Biggs, Montgomery H.	Rutherfordton
*Bigler, V. L.	Albemarle
*Billings, G. M.	Morganton
Bitting, Numa Duncan	Durham
*Bittinger, S. M.	Sanatorium
Bizzell, M. E.	Goldsboro
*Black, George Wm.	Charlotte
Black, O. R.	Landis
Blackshear, T. J.	Wilson
Blackwelder, Verne H.	Lenoir
Blair, Andrew	Charlotte
*Blair, A. McNiel	Southern Pines
Blair, J. L.	Gastonia
Blair, M. P.	Marshville
*Blanchard, T. W.	Hobbsville
Bliss, F. E.	Fletcher
Blue, A. McN.	Carthage
*Blue, Waylon	Jonesboro
Blumberg, Alfred	Oteen
Boger, D. T.	
Boice, E. S.	Rocky Mount
Bolt, C. A.	Marshville
*Boney, Elwood R.	Kinston
Bonner, H. M.	Greenville
Bonner, J. B.	Aurora
*Bonner, K. P. B.	Morehead City
Bonner, M. D.	Jamestown
*Bonner, O. B., OALR	High Point
*Booker, L. S.	Durham
*Booker, Edwin N.	Selma
*Boone, W. H.	Durham
*Boone, W. W.	Durham
*Bost, T. C.	Charlotte
Bostic, Wm. C.	Forest City
Bostic, W. C., Jr.	Forest City
*Bowen, J. P.	Southern Pines
*Bowers, M. A.	Winston-Salem
*Bowles, Francis N.	Durham
Bowling, J. M.	Durham
Bowman, C. R.	Kannapolis
*Bowman, E. L.	Lumberton
Bowman, H. E.	Aberdeen
Bowman, H. P.	Greensboro
Brackett, W. E.	Hendersonville
Braddy, Wade H.	Burlington
Bradford, W. Z.	Charlotte
*Bradsher, J. S.	Stovall
Brantley, Hassell	Spring Hope
Brantley, J. C.	Spring Hope
Brawley, M. H., OALR	Salisbury
Bray, T. L.	Plymouth
*Brenizer, A. G., Jr.	Charlotte
*Brewer, J. S.	Roseboro
*Brewton, W. A.	Enka
*Bridger, D. H.	Bladenboro
Bridges, D. T.	Lattimore
*Briggs, Henry H., Jr.	Asheville
Brinkley, H. M.	Durham
Brinn, T. P.	Hertford
*Bristow, C. O.	Rockingham
Britt, C. S.	Charlotte
Britt, J. N.	Lumberton
Britt, T. C.	Mt. Airy
*Brockmann, Harry L.	High Point
Brooks, B. U.	Durham
*Brooks, R. E.	Burlington
Brookshire, H. G.	Asheville
*Broun, M. S., OALR	Asheville
Brown, C. E.	Salisbury
*Brown, F. B.	Winston-Salem
Brown, G. A., (Hon.)	Mt. Ulla
*Brown, G. W.	Raeford
Brown, J. S., Sr., (Hon.)	Hendersonville
Brown, Kermit E.	Asheville
Brown, Robt. Hyatt	Hendersonville
*Brown, W. M. B.	Greenville
Brownsberger, Ethel	Biltmore
*Brownsberger, John F.	Biltmore
*Brunson, E. P.	Albemarle
*Bryan, Lorenzo D.	Snead's Ferry
Buchanan, L. T.	Laurinburg
Buckner, J. M.	Swannanoa
Buckner, Margaret	Charlotte
Buffaloe, J. S., (Hon.)	Garner
Brown, J. S., Jr.	Hendersonville
*Bugg, C. R.	Raleigh
*Buie, Roderick M.	Greensboro
*Bulla, A. C.	Raleigh
*Bullitt, J. B.	Chapel Hill
Bullock, Thomas C., (Hon.)	Autryville
*Bulluck, Ernest S.	Wilmington
Bunn, J. J.	Mt. Pleasant
Burleson, W. B.	Plumtree
Burns, J. E.	Concord
*Burrus, John T., (Hon.)	High Point
*Burt, B. W., (Hon.)	Holly Springs
Burt, S. P., (Hon.)	Louisburg
*Butler, Leroy J.	Winston-Salem
Butt, R. B.	Marion
*Byerly, Andrew B., (Hon.)	Cooleemee

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Byrd, W. C.	Morrisville
*Byrnes, T. H.	Durham
Caddell, G. C.	Hoffman
*Caldwell, D. G.	Concord
Caldwell, Lawrence	Newton
Campbell, Alton C.	Raleigh
Campbell, A. S.	Durham
Campbell, Jas. I.	Norwood
Campbell, J. W.	Gastonia
Candler, Chas. Z.	Sylva
*Carlton, Romulus L.	Winston-Salem
Carlyle, J. B.	Burlington
*Carpenter, Coy C.	Wake Forest
Carr, Eugene M.	Asheville
Carr, M. L.	LaGrange
*Carrington, G. L.	Burlington
Carrington, S. M.	Oxford
Cheesborough, Thos. P., (Hon.)	Biltmore
*Chester, P. J., OALR	Southern Pines
Cheves, W. G.	Bunn
*Chiles, George C.	Sanford
*Choate, A. B.	Charlotte
Clark, D. D.	Clarkton
*Carroll, E. D. Dixon, (Hon.)	Raleigh
Carroll, F. W.	Hookerton
Carter, Bayard	Durham
Carter, H. W., OALR	Washington
*Carter, P. C.	Madison
*Carter, Thos. L.	Gatesville
*Castelloe, Cola	Windsor
Casstevens, J. C.	Clemmons
*Casteen, Kenan	Leaksville
Cater, R. L.	Greensboro
Cathell, E. J.	Lexington
Caviness, Zebulon M., (Hon.)	Raleigh
*Caviness, V. S.	Raleigh
*Chadwick, W. S.	Beaufort
Chambers, P. J.	Charlotte
*Chapin, Wm. Burdette	Pittsboro
Chaplin, S. C.	Columbia
Cheadle, C. M.	Burnsville
*Cheek, C. E.	Fuquay Springs
Cook, J. L.	Winston-Salem
Cook, W. E.	Mebane
*Cooke, G. C.	Winston-Salem
Clark, E. S.	Clarkton
*Clark, H. S.	Asheville
Clary, Wm. T.	Greensboro
Clay, E. L.	Timberlake
*Clement, Edward B., OALR	Salisbury
Cloninger, K. L.	Conover
*Clyatt, Claude Eugene	Denton
*Cobb, Donnell B.	Goldsboro
Cobb, Wm. H., Jr., (Hon.)	Goldsboro
*Cocke, C. H.	Asheville
Cocke, E. R.	Asheville
Cocke, Jere E.	Asheville
*Coddington, H. A.	Wilmington
Coe, S. S.	High Point
Colby, C. DeW.	Asheville
*Cole, Walter F.	Greensboro
*Collings, Ruth M.	Greensboro
Combs, Fielding	Winston-Salem
*Combs, Jos. J.	Raleigh
*Cook, H. L.	Greensboro
*Cooke, Q. H.	Rich Square
*Cooper, G. M.	Raleigh
Coppedge, N. P.	Candor
Coppedge, T. O.	Nashville
*Coppridge, W. M.	Durham
Corbett, J. P.	Swansboro
*Cornwell, A. M.	Lincolnton
Corpening, O. J.	Granite Falls
*Costner, W. V.	Lincolnton
Cotten, Clyde E., (Hon.)	Asheville
Couch, V. F.	Winston-Salem
*Covington, J. M.	Wadesboro
*Covington, J. M. C.	Roanoke Rapids
Covington, Platt W.	Salt Lake City (Anson Co.)
Cox, E. L., (Hon.)	Jacksonville
Cox, G. S.	Tabor
Cox, Thomas A.	Hertford
Cozart, B. F.	Reidsville
Cozart, S. R.	Greensboro
Cozart, W. S.	Fuquay Springs
*Craig, S. Douglas	Winston-Salem
Cranmer, J. B.	Wilmington
*Craven, F. C.	Asheboro
Craven, Thomas	Huntersville
Craven, W. W.	Charlotte
*Crawford, Robt. H.	Rutherfordton
Crawford, W. J.	Goldsboro
*Crisp, S. M.	Greenville
*Crispell, R. S.	Durham
*Crouch, A. McR.	Wilmington
Crouch, T. D.	Stony Point
Crow, S. L.	Asheville
*Crowell, A. J., (Hon.)	Charlotte
*Crowell, L. A., (Hon.)	Lincolnton
Crowell, L. A., Jr.	Lincolnton
Crump, Curtis	Asheville
Crumpler, Paul	Clinton
Cummings, M. P.	Reidsville
Currie, D. S.	Parkton

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
*Cutchin, J. Henry	Whitakers
*Dale, G. C	Goldsboro
*Daligny, Charles, (Hon.)	Troy
Dalton, Wm. N	Winston-Salem
*Daniel, N. C	Oxford
Daniels, O. C., OALR	Oriental
Darden, D. B	Stantonsburg
*Darden, O. B	Richmond, Va. (Durham Co.)
*Daughtridge, A. L	Rocky Mount
Davenport, C. A	Hertford
*Davidian, Varton A	Smithfield
*Davidson, Jno. E. S., (Hon.)	Charlotte
Davis, F. M	Canton
Davis, George	Beaufort
Davis, J. M	Wadesboro
*Davis, Jas. W	Statesville
*Davis, P. B., Sheraton Hotel	High Point
Davis, Rachel D	Kinston
*Davis, R. B	Greensboro
Davis, Stephen W	Charlotte
Davis, Thomas W., OALR, (Hon.)	—Winston-Salem
Davis, T. M	Charlotte
*Davison, Wilburt C	Durham
Dawson, J. N	Lake Waccamaw
Dawson, W. E	Hookerton
Deans, A. W	Battleboro
DeArmon, J. McC., (Hon.)	Charlotte
*Dees, D. A., OALR	Bayboro
Dees, R. E	Greensboro
*Dees, Rigdon O	Greensboro
DeLaney, C. O	Winston-Salem
DeLoatch, M. W	Tarboro
Denchfield, A. L	Asheville
*Dewar, William B	Raleigh
Deyton, John W	Asheville
Dick, Julius B	Gibsonville
*Dickie, J. W	Southern Pines
*Dickinson, E. T., (Hon.)	Wilson
*Dickson, M. S	Oakboro
Dillard, G. P	Draper
Ditmore, Harry B	Marshall
*Dixon, G. G	Ayden
Dixon, Guy E., (Hon.)	Hendersonville
*Dixon, Hubert C	Leaksville
Dixon, W. H	Rocky Mount
Dixon, Wm. H., (Hon.)	Ayden
*Dodge, Eva F	Winston-Salem
Dosher, Wm. S	Southport
Drummond, C. S	Winston-Salem
Duckett, V. H	Canton
Duffy, R. N	New Bern
Duigid, Jos. W	Dover
Dula, F. M	Lenoir
*Duncan, S. A	Benson
Dunlap, L. V	Albemarle
*Durham, C. W	Greensboro
*Eagle, J. C	Spencer
*Eagle, Watt W	Durham
Easley, P. S	Nashville, Tenn. (Iredell-Alexander)
*Easom, H. F	Sanatorium
Eaves, Rupert S	Rutherfordton
Eckel, O. F	Asheville
*Eddleman, Hall M., (Hon.)	Gastonia
Edgerton, G. S	Mooresville
Edwards, A. M	Taylorsville
Edwards, C. P., OALR	Asheville
Edwards, B. O	Asheville
Edwards, C. J	Raleigh
Edwards, F. D	Lawndale, Rt. 1
Edwards, J. D., (Hon.)	Siler City
Edwards, V. E	Greensboro
*Eldridge, Chas. P	Raleigh
*Elias, Lewis W	Asheville
*Eller, Albert J	Readybranch
*Ellington, A. J., OALR	Burlington
*Elliott, A. H	Wilmington
Elliott, J. A	Charlotte
*Elliott, W. F., OALR	Lincolnton
*Ellis, Frank A	Salisbury
Ellis, R. C., (Hon.)	Shelby
*Ennett, N. T	Mount Airy
Erwin, Evan A	Laurinburg
Evans, J. E	Wilmington
*Evans, L. B	Windsor
*Everett, A. C	Rockingham
Faison, Elias	Charlotte
*Falls, Fred	Lawndale
*Farrington, R. K	Thomasville
Farthing, L. E	Wilmington
*Fassett, Burton W., OALR	Durham
Faulk, J. G	Pembroke
Fauntleroy, Jas. W	Zirconia
Fearing, Isaiah, (Hon.)	Elizabeth City
*Fearington, J. C. P	Winston-Salem
*Felton, R. L	Carthage
*Felts, Robt. L	Durham
Fenner, Edwin F	Henderson
Ferebee, C. G	Morehead City
*Ferguson, R. T	Charlotte
Ferneyhough, W. T	Reidsville
*Fields, Leonard E	Chapel Hill
*Fike, Ralph L	Wilson
Finch, O. E	Raleigh

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Finney, J. R.	Boonville
Fitzgerald, J. H., OALR	Smithfield
*Flagge, Philip W.	High Point
Fleetwood, Jos. A.	Conway
Fleming, Fred	Coats
*Fleming, L. E.	Charlotte
*Fleming, M. I.	Rocky Mount
Flemming, Giles M.	Cleveland
Flippin, J. M., (Hon.)	Pilot Mountain
Flippin, Samuel T., (Hon.)	Siloam
Flowers, Clarence A.	Wendell
Flowers, C. E.	Zebulon
Floyd, H. T.	Oteen
Floyd, L. D.	Fair Bluff
Folger, B. B.	Dobson
*Ford, D. E.	Washington
*Formyduval, T.	Whiteville
Forrest, D. E.	Hillsboro
Fortune, Alex F., (Hon.)	Greensboro
Foster, H. H.	Norlina
*Foster, J. F.	Sanford
*Foster, M. T.	Fayetteville
Fouts, J. H.	Franklin
*Fox, P. G.	Raleigh
Fox, Robt. Eugene	Raleigh
Francis, Wm. G.	Waynesville
*Franklin, Ernest W., Jr.	Charlotte
*Frazier, J. W.	Salisbury
Freeman, J. D., OALR	Wilmington
Freeman, R. H.	Raleigh
Freeman, Wm. T.	Biltmore
Fresh, W. M.	Hickory
*Frizzelle, M. T.	Ayden
*Frye, Glenn R.	Hickory
Fulghum, Jas. E.	Louisburg
Futrell, L. M.	Murfreesboro
*Gage, L. G.	Charlotte
Gainey, John W.	Fayetteville
*Gallant, Robt. M.	Charlotte
Galloway, W. C., (Hon.), OALR—	—Wilmington
Gambill, I. S.	Elkin
Gamble, J. F.	Lincolnton
*Gamble, J. R.	Lincolnton
*Gambrell, Grover C.	Lexington
Gantt, L. Rosa H.	Tryon
*Gardner, C. E., Jr.	Durham
Garren, R. H.	Monroe
Garrenton, Cecil	Bethel
*Garrett, F. B.	Rockingham
*Garrison, D. A., (Hon.)	Gastonia
*Garriss, F. H.	Lewiston
Garvey, Fred K.	Winston-Salem
*Garvey, R. R.	Winston-Salem
Gaskins, C. W.	Asheville
*Gaskin, J. S.	Albemarle
Gaskin, Lewis R.	Albemarle
Gaskin, Madge B.	Albemarle
*Gaul, Jno. Stuart	Charlotte
*Geddie, K. B.	High Point
Gentry, Geo. W.	Roxboro
George, John C.	Oteen
Gibbon, James W.	Charlotte
*Gibbon, Robert L., (Hon.)	Charlotte
Gibbs, J. B.	Burnsville
Gibson, John S.	Gibson
Gibson, L. O.	Statesville
*Gibson, M. R., OALR	Raleigh
*Gilmore, C. M.	Greensboro
Gilmore, W. D.	Tombstone, Ariz. (Iredell-Alexander)
Gilreath, Frank H., (Hon.)—	—North Wilkesboro
Glascock, Joy H.	Greensboro
Glenn, C. F.	Rutherfordton
Glenn, H. F., Jr.	Gastonia
Glover, F. O.	Salisbury
Godwin, G. C.	Oteen
*Gold, Ben	Shelby
Gold, Charles F.	Rutherfordton
Gold, T. B.	Shelby
*Goley, Willard Coe	Graham
Goley, Wm. R.	Shallotte
Goley, Wm. Rankin, (Hon.)	Graham
Goode, T. V.	Statesville
Goodman, A. B., (Hon.)	Lenoir
Goodwin, A. W., (Hon.)	Raleigh
*Goodwin,, O. S.	Apex
Goudelock, Jno. L.	Monroe
*Goudge, Mabel E.	West Durham
Gouge, A. E.	Bakersville
Gouger, Geo. J., (Hon.)	Concord
*Gove, Anna M., (Hon.)	Greensboro
Grady, F. M.	Mooresville
*Grady, Jas. C., (Hon.)	Kenly
*Grady, Leland V.	Wilson, Rt. 2
Grady, Wm. Earle, (Hon.)	Tryon
Grantham, Wm. L.	Asheville
Gray, Eugene P.	Winston-Salem
Grayson, C. S.	High Pont
*Green, Wm. W.	Tarboro
*Greene, Jos. B., OALR	Asheville
*Greene, P. Y.	Raleigh
*Greenwood, A. B.	Asheville
*Gregg, A. D.	Liberty

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Grier, Charles T.	Carthage
*Griffin, H. L.	Star
*Griffin, H. W.	Hickory
Griffin, M. A.	Asheville
*Griffin, W. R.	Asheville
*Griffith, F. W.	Asheville
Griffith, L. M., OALR	Asheville
Griggs, W. T., (Hon.)	Poplar Branch
*Grimes, W. L.	Winston-Salem
Groome, J. G.	High Point
Grose, Glenn	Harmony
Groves, R. B.	Lowell
Guyton, C. L.	Monroe
Gwyn, H. L.	Yanceyville
*Gyles, Ronald C.	Siler City
*Hackney, Ben H.	Lucama
Hagaman, J. B.	Boone
*Halford, Jos. W.	Lillington
*Hall, W. D.	Raleigh
Hamblen, E. C.	Durham
*Hambrick, Robt. T.	Hickory
Hamer, Douglas, Jr.	Lenoir
Hamer, W. A.	Chadwick
*Hamilton, John H.	Raleigh
Hammond, A. F.	Polloksville
*Hand, Edgar H.	Charlotte
*Hanes, F. M.	Durham
*Hansen-Pruss, O. C. E.	Durham
*Harbison, J. W.	Shelby
Hardee, W. P.	Durham
*Harden, Graham	Burlington
Harden, R. N.	Greensboro
*Hardin, E. R.	Lumberton
Hardin, R. H.	Banner Elk
Hardy, Ira M., OALR, (Hon.)	Kinston
Hare, R. B.	Wilmington
Harper, J. H.	Snow Hill
*Harrell, L. J.	Goldsboro
Harrill, L. B., (Hon.)	Caroleen
Harris, Arthur G.	Fairfield
*Harris, W. T.	Troy
Harrison, Edmund, (Hon.)	Greensboro
*Harrison, Edward T.	High Point
Harrison, H. H.	Asheville
Harrison, J. P.	Kinston
Harriss, Andrew H., (Hon.)	Wilmington
*Hart, Deryl	Durham
Hart, Jno. E.	Wadesboro
Hart, O. J.	Winston-Salem
*Hart, V. K.	Charlotte
Hatcher, M. A.	Hamlet
Hathcock, Thos. A., (Hon.)	Norwood
Harvey, W. W.	Greensboro
Hayes, A. H.	Fairmont
Hayes, R. B.	Hillsboro
Hays, B. K., (Hon.)	Oxford
*Haywood, C. L., Jr.	Durham
*Haywood, Hubert B., Jr.	Raleigh
Head, W. T.	Campobello, S. C., Rt. 4 (Rutherford Co.)
*Hedgpeth, E. McG.	Chapel Hill
*Hedgpeth, L. R.	Lumberton
Hedrick, C. R.	Lenoir
*Hege, J. Roy	Winston-Salem
*Helms, J. B.	Morganton
Helsabeck, C. J.	Walnut Cove
Henderson, C. C.	Mount Olive
Henderson, Jno. P.	Jacksonville
*Henry, T. B.	Rockingham
*Hensley, Chas. A.	Asheville
Herbert, Fred L.	Andrews
Herbert, Wm. P.	Asheville
*Herman, Chas. B.	Statesville
*Herring, E. H.	Raleigh
Hester, Wm.	Reidsville
*Hiatt, H. B.	High Point
Hicks, Calvin S., (Hon.)	Durham
Hicks, I. F., (Hon.)	Dunn
*Hicks, V. M., Oph.	Raleigh
Highsmith, Charles, (Hon.)	Dunn
*Highsmith, J. D.	Fayetteville
*Highsmith, J. F., (Hon.)	Fayetteville
*Highsmith, J. F., Jr.	Fayetteville
*Highsmith, Seavy, (Hon.)	Fayetteville
Highsmith, W. C.	Fayetteville
Hinnant, Milford	Micro
Hill, A. L.	Burlington
Hill, J. N.	Murphy
*Hill, M. D.	Raleigh
*Hill, Wm. I., (Hon.)	Albemarle
Hines, E. R.	Rocky Mount
*Hipp, Edw. R.	Charlotte
Hipps, A. G. T.	Asheville
*Hocutt, Battle A.	Clayton
Hodge, A. R.	Severn
Hodgin, H. H.	Red Springs
*Hoggard, J. T.	Wilmington
Holbrook, J. Samuel	New Orleans, La. (Wilkes-Alleghany)
Holleman, Chas.	Winston-Salem
Hollingsworth, E. T.	Goldsboro
Holloway, Joseph C.	Durham
Holloway, Robert Lee, (Hon.)	—West Durham
Hollyday, W. M., OALR	Asheville
*Holmes, A. B.	Fairmont

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Holmes, George W.	Winston-Salem
*Holt, D. W.	Greensboro
*Holt, Wm. P., (Hon.)	Erwin
*Holt, Wm. P., Jr.	Erwin
Holt, T. J.	Warrenton
Hooker, J. S.	Chapel Hill
*Hooks, Bordon	Tarboro
Hooks, Thel, (Hon.)	Smithfield
Hooper, Jos. W.	Wilmington
Hoover, C. H.	Crouse
Horton, M. C., OALR	Raleigh
*Horton, W. C., (Hon.)	Raleigh
Houck, Albert F., (Hon.)	Lenoir
House, W. O.	Tarboro
Houser, E. A., (Hon.)	Shelby
*Houser, Forest M.	Cherryville
Houser, O. J.	Charlotte
*Hovis, L. W., OALR	Charlotte
*Howard, C. E.	Goldsboro
*Howell, W. L.	Ellerbe
Hoyle, Hughes B.	Manteo
*Hubbard, Chas. C., (Hon.)	Farmer
*Hubbard, Fred C.	North Wilkesboro
*Hudson, C. C.	Greensboro
Huffines, T. R.	Asheville
Hunsucker, Chas. R.	Hickory
Hunt, J. F.	Spindale
*Hunt, J. S.	Charlotte
*Hunt, W. Bryce	Lexington
Hunter, Frank P.	Warrenton
*Hunter, J. P.	Cary
Hunter, L. W., (Hon.)	Charlotte, Rt. 1
*Hunter, W. Myers	Charlotte
*Hunter, W. C.	Wilson
*Hurdle, S. W.	Winston-Salem
*Huston, Jno. W.	Asheville
Hutchens, E. M.	North Wilkesboro
*Hutchinson, S. S.	Bladenboro
Hyde, Francis Edward	Beaufort
*Ingersoll, Louise M.	Asheville
Ingram, Chas. B., (Hon.)	Mt. Gilead
Irwin, Henderson	Eureka
*Ivey, H. B.	Goldsboro
Ivey, R. R., U.S.P.H.S.	Biltmore
*Jackson, Walter Leo	High Point
Jacocks, W. P.	New York City (Lincoln Co.)
James, Albert W.	Laurinburg
*James, F. P.	Laurinburg
*James, W. D.	Hamlet
Jarman, F. G.	Roanoke Rapids
*Jennings, C. W., OALR	Greensboro
*Jennings, R. G.	Thomasville
Jervey, A. J.	Tryon
Jett, Samuel G.	Reidsville
Jewett, R. D., (Hon.), OALR—	—Wilmington
John, Peter, (Hon.)	Laurinburg
*Johnson, C. T.	Red Springs
*Johnson, Floyd	Whiteville
*Johnson, Geo. W.	Wilmington
*Johnson, Harry L.	Elkin
*Johnson, H. H.	Louisburg
*Johnson, Jos. L.	Graham
Johnson, J. R.	Ramseur
Johnson, N. M., (Hon.)	Durham
Johnson, Otis H.	Morehead City
Johnson, Paul W.	Winston-Salem
*Johnson, Thos. C., (Hon.)	Lumberton
Johnson, W. A.	Reidsville
*Johnson, Walter R.	Asheville
Johnson, W. C.	Canton
*Johnson, Wingate M.	Winston-Salem
Johnston, Christopher	Durham
Johnston, W. W.	Manteo
Jonas, John F., (Hon.)	Marion
*Jones, Beverly N., OALR—	—Winston-Salem
*Jones, Carey C.	Apex
Jones, Catesby	Asheville
Jones, Clara E., (Hon.)	Goldsboro
Jones, D. C.	Lansing
Jones, R. Duval	New Bern
*Jones, R. R., Jr.	Durham
*Jones, R. Rives	Winston-Salem
Jones, T. Lester	Lansing
Jones, W. M.	Gastonia
*Jones, Wm. M., (Hon.)	Greensboro
Jones, W. S.	Nashville
Jordan, Chas. S., (Hon.)	Asheville
*Jordan, Wm. S., OALR	Fayetteville
Judd, Eugene C.	Raleigh
Judd, James M., (Hon.)	Varina
*Julian, Chas. A., (Hon.)	Greensboro
Junkin, W. M.	Andrews
Jurney, Peter C.	Turnersburg
Justice, Gaston B.	Marion
Justice, Wm. S.	Asheville
Keever, Jas. W.	Hickory
*Keiger, Jas. A.	Greensboro
Keiger, O. R.	Winston-Salem
Keith, Marion Y.	Greensboro
Kelly, Luther W.	Charlotte
Kendall, B. H.	Shelby
Kende, Tibor N.	Northport, L. I. (Burke Co.)

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Kenfield, H. W.	Hatteras
*Kennedy, John P.	Charlotte
Kent, Alfred A., (Hon.)	Winter Park, —Florida, (Caldwell Co.)
*Kent, Alfred A., Jr.	Granite Falls
*Kerns, T. C., OALR	Durham
Kerr, John D.	Clinton
Kerr, Jas. E., (Hon.)	Winston-Salem
*Ketchie, J. M.	Salisbury
Ketner, Fred Y.	Concord
Killian, Frank M.	Franklin
Kimberly, David, Jr.	Hot Springs
King, Edward, 1060 Park Ave.,—	—New York, N. Y., (Buncombe Co.)
*King, E. S.	Wake Forest
King, Parks M., (Hon.)	Charlotte
King, Richard M.	Concord
King, Robt. Rogers	Ellenboro
Kinlaw, Wm. B.	Rocky Mount
Kinsman, Henry F.	Hamlet
Kirby, Guy S., (Hon.)	Marion
Kirby, W. L.	Winston-Salem
Kirk, W. R., (Hon.)	Hendersonville
Kirkpatrick, W. L.	Waynesville
Kirksey, James J.	Morganton
Kirksey, W. A.	Hope Mills
Klutz, A. F.	Maiden
*Kluttz, DeWitt	Washington
*Knight, Floyd L.	Sanford
Knight, H. W.	Bostic
*Knight, Wm. P., (Hon.)	Greensboro
*Knowles, D. L.	Rocky Mount
Knox, A. W., (Hon.)	Raleigh
*Knox, J. C.	Raleigh
Koonce, Donald	Wilmington
Koonce, S. Everett, OALR, (Hon.)—	—Wilmington
Kornegay, Lemuel W.	Rocky Mount
Kremer, C. E., Jr.	Charlotte
*Kutscher, G. W., Jr.	Swannanoa
Lackey, W. J.	Fallston
Lafferty, Robt. H.	Charlotte
Lambert, W. L.	Asheboro
Lamm, I. W., (Hon.)	Raleigh
*Lancaster, F. J.	Lexington
Lancaster, N. F.	Waynesville
*Lane, Bessie	Raleigh
*Lane, John L., OALR	Rocky Mount
*Lane, P. P.	Wilson
Large, H. Lee	Rocky Mount
Lassiter, H. G.	Weldon
*Lassiter, V. C.	Winston-Salem
*Laton, Jas. F., OALR	Albemarle
*Lattimore, E. B., (Hon.)	Shelby
*Lawrence, B. J.	Raleigh
Lea, J. I.	Tryon
*Leak, W. G.	East Bend
*Le Bauer, S. F.	Greensboro
*Ledbetter, Jas. McQ., OALR—	—Rockingham
*Lee, J. Marshall	Newton Grove
Lee, Lawrence V., (Hon.)	Lattimore
*Lee, Mike	Kinston
*Lee, Thomas L.	Kinston
Leeper, Donald H.	Hiddenite
Leiby, G. M.	Gibsonville
*Leinbach, Robt. F.	Charlotte
Lentz, C. M.	Albemarle
*Leonard, J. C., Jr.	Lexington
*Lewis, C. W.	Beaufort
Lewis, H. W., (Hon.)	Jackson
Lewis, J. S.	Hickory
Liles, L. C.	Raleigh
Lilly, Jas. M., OALR, (Hon.)—	—Fayetteville
Linville, A. Y., (Hon.)	Winston-Salem
*Linville, W. C.	Goldsboro
Lister, J. L.	Jackson
Little, Lonnie M.	Statesville
*Liverman, J. S.	Winterville
*Livingston, E. A., OALR	Gibson
Lloyd, B. B.	Carrboro
Lockett, Everett A., (Hon.)—	—Winston-Salem
Logan, F. W. H.	Rutherfordton
London, Arthur Hill	Durham
*Long, Benj. Leroy	Glen Alpine
*Long, E. F.	High Point
Long, Fred Y.	Catawba
Long, Glenn	Newton
Long, H. F., (Hon.)	Statesville
*Long, Z. F.	Rockingham
Long, L. L.	Laurel Springs
Long, R. H.	Morganton
*Long, T. W. M.	Roanoke Rapids
Long, V. McK.	Winston-Salem
Looney, J. J. W.	Rocky Mount
Lord, Marjery J.	Montreat
Lott, Wm. C.	Asheville
*Love, Bedford E.	Roxboro
Love, Wm. M.	Monroe
Lovelace, Thos. C.	Henrietta
Lovill, Robt. J.	Mount Airy
Lowery, E. F.	Raleigh
*Lowery, John R.	Salisbury
*Lubchenko, N. E.	Harrisburg

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
*Lupton, C. C.	Burlington
Lutterloh, I. Hayden, Jr.	Sanford
Lyday, C. E.	Gastonia
*Lyday, R. O.	Greensboro
Lynch, J. M.	Asheville
Lyon, B. R.	Greensboro
Lyon, Henry Wise	Windsor
*MacConnell, John W., OALR—	—Davidson
MacFayden, Paul R.	Concord
MacFayden, Paul R., Jr.	Concord
MacNider, Wm. deB.	Chapel Hill
MacRae, J. D., Jr.	Asheville
McAdams, C. R.	Belmont
McAnnally, Jas. McG.	Reidsville
*McAnally, Wm. J., (Hon.)	High Point
*McBee, Paul	Bakersville
*McBrayer, L. B., (Hon.)	Southern Pines
McBride, W. P. L.	Winston-Salem
*McBryde, Angus M.	Durham
McBryde, M. H.	Reidsville
*McCain, P. P.	Sanatorium
*McCain, Wm. R., (Hon.)	High Point
*McCall, A. C., OALR	Asheville
McCampbell, John, (Hon.)	Morganton
McCants, C. H.	Winston-Salem
McChesney, W. W.	Gastonia
*McClees, E. C.	Elm City
McClelland, Joseph O.	Maxton
*McCoy, Thos. M.	Charlotte
McCotter, St. Elmo	Bayboro
McCracken, C. M., (Hon.)	Fairview
McCracken, J. R., (Hon.), OALR—	—Waynesville
McCracken, M. H.	Canton
McCuiston, A. M.	Mt. Olive
*McCutchan, Frank	Salisbury
*McCutcheon, W. B.	Durham
McDade, B. B.	Burlington
McDowell, F. C.	Zebulon
*McDowell, R. H.	Belmont
McDowell, W. K.	Winston-Salem
McDuffie, W. N.	Hemp
McElroy, J. L.	Marshall
*McElwee, Ross S.	Statesville
*McFayden, O. L.	Fayetteville
*McGeachy, R. S. (Hon.)	Henderson
McGee, Jas. W., (Hon.)	Raleigh
McGee, J. M.	Greensboro
*McGehee, Jno. Wm.	Reidsville
McGregor, Geo. D.	Charlotte
McGoogan, Benj. J.	Morven
McGowen, Claudius	Plymouth
McGuire, B. B.	Newland
McIntosh, D. M.	Old Fort
McIntrye, Stephen	Lumberton
*McIver, Lynn, (Hon.)	Sanford
*McKay, Hamilton W.	Charlotte
*McKay, Jos. F., (Hon.)	Buies Creek
McKay, Robert W.	Charlotte
*McKay, W. P.	Fayetteville
McKee, John S.	Raleigh
*McKnight, R. B.	Charlotte
McLaughlin, C. S., (Hon.)	Charlotte
McLaughlin, J. E., (Hon.)	Statesville
McLean, I. N.	Burnsville
*McLean, John W.	Godwin
McLelland, W. D.	Mooresville
McLemore, Geo. A.	Smithfield
*McLeod, A. H., (Hon.)	Aberdeen
McLeod, J. H.	Fayetteville
McLeod, N. H.	Raleigh
*McLeod, Vida C.	Southern Pines
McLeod, W. G.	Southern Pines
McMillan, B. F., (Hon.)	Red Springs
McMillan, J. M.	Candor
*McMillan, R. D.	Red Springs
McMillan, W. D., (Hon.)	Wilmington
*McNairy, Caroline	Lenoir
*McNeill, Jas. H.	North Wilkesboro
McPhail, L. D.	Charlotte
*McPheeters, S. B.	Charlotte
*McPherson, C. W., OALR	Burlington
McPherson, R. G.	Saxapahaw
*McPherson, S. D., OALR, (Hon.)—	—Durham
Mackie, Geo. C.	Wake Forest
Mackie, N. W.	Yadkinville
Macon, G. H.	Warrenton
Mahoney, A. F.	Monroe
Mallett, E. P., (Hon.)	Hendersonville
Malloy, S. A., (Hon.)	Yanceyville
*Maness, A. K.	Greensboro
Mangum, C. S.	Chapel Hill
Mann, E. M.	Moyock
*Mann, I. Thurman	High Point
Mann, S. M.	Moyock
*Manning, I. H., (Hon.)	Chapel Hill
Mariner, N. B.	Belhaven
Markham, Blackwell	Durham
Marlowe, W. A.	Walstonburg
*Marr, M. W.	Pinehurst
Marsh, Frank B.	Salisbury
Martin, J. A.	Lumberton
Martin, J. F.	Dunn
Martin, J. H.	Red Oaks

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Martin, J. W.	Roanoke Rapids
*Martin, Moir S.	Mt. Airy
*Martin, William F.	Charlotte
Martin, W. J.	Richmond, Va. (Mecklenburg)
Mason, Manly	Newport
Massey, C. C.	Smithfield
*Matheson, J. Gaddy	Ahoskie
Matheson, James P.	Charlotte
*Matheson, R. A.	Raeford
Matros, Nathaniel H.	Oteen
Mathews, Vann M.	Charlotte
*Matthews, B. B.	Shelby
Matthews, James O., (Hon.)—	—Clinton, R. F. D.
*Matthews, M. L.	Sanford
*Matthews, Wm. W.	Leaksville
Maxwell, C. S.	Beaufort
Mayer, W. B.	Charlotte
Meadows, W. J., (Hon.)	Greensboro
Mears, George A.	Asheville
Mebane, W. C.	Wilmington
Mebane, W. C., Jr.	Wilmington
*Meisenheimer, Thos. M.	Charlotte
*Melvin, W. C.	Linden
Menzies, H. C., (Hon.)	Hickory
*Merritt, John H.	Woodsdale, R. 1
*Milan, D. F.	Raleigh
Miles, Walter W.	Champion
*Milham, C. G.	Hamlet
Millander, Chas. W.	Asheville
Miller, J. F.	Marion
*Miller, O. L.	Charlotte
*Miller, R. C.	Gastonia
Miller, Robert B., (Hon.)	Goldsboro
*Milliken, J. S.	Southern Pines
*Mitchell, Geo. W.	Wilson
Mitchell, G. T.	Wilkesboro
Mitchell, Paul H.	Ahoskie
*Mitchell, R. C.	Mt. Airy
*Mitchell, Z. P.	Weldon
Mitchener, J. S., OALR	Raleigh
Mock, Frank L.	Lexington, R. 3
*Monk, Henry L., (Hon.)	Salisbury
*Monroe, C. R.	Pinehurst
Montgomery, Kenneth E.	Asheville
Moore, Alexander W.	Charlotte
Moore, Chas. E., (Hon.)	Wilson
*Moore, B. D.	Mount Holly
Moore, D. B.	Badin
*Moore, D. F.	Shelby
Moore, Henry B.	Graham
Moore, Jos. N.	Marshall
*Moore, Julian A.	Asheville
Moore, L. W.	Beaufort
Moore, Oren	Charlotte
Moore, R. A.	Charlotte
*Moore, R. A.	Winston-Salem
Moore, Roy H.	Canton
*Moore, T. V.	Delco
*Moore, W. Houston	Wilmington
Morgan, A. E.	Lincolnton
Morgan, B. E.	Asheville
Morgan, G. A.	Asheville
Morris, Jos. A., (Hon.)	Oxford
Moseley, Chas. W., (Hon.)	Greensboro
*Moseley, Z. V.	Kinston
Moss, G. O.	Cliffside
*Motley, Fred Elliott	Charlotte
*Mudgett, W. C.	Southern Pines
Mullen, M. P.	Wilson
Munroe, H. Stokes	Charlotte
Munroe, J. P., (Hon.)	Charlotte
Munt, H. F.	Winston-Salem
Murchison, D. R.	Wilmington
*Murphy, Gibbons W.	Asheville
*Murphy, W. B.	Snow Hill
*Murray, R. L.	Raeford
*Myers, Alonzo	Charlotte
Myers, D. L.	Jennings
*Myers, John Q., (Hon.)	Charlotte
*Nalle, B. C.	Charlotte
*Nance, C. L.	Charlotte
*Nash, J. Fred	St. Paul
*Neal, Kemp P.	Raleigh
Neal, Paul N.	Raleigh
Neblett, H. C.	Charlotte
Nelson, R. J., (Hon.)	Robersonville
Nesbitt, Charles T.	Wilmington
*Neville, C. H.	Scotland Neck
*Newby, G. E.	Hertford
Newcombe, A. P., Jr.	Henderson
*Newell, H. A., OALR	Henderson
Newell, Leon B.	Charlotte
Newland, Chas. L.	Brevard
*Newman, Harold H.	Salisbury
*Newton, Howard L.	Charlotte
Newton, Wm. K.	North Wilkesboro
Nichols, Alvin A.	Sylva
Nichols, Ashbury S.	Sylva
Nichols, Austin F.	Roxboro
*Nichols, R. E., Jr.	Durham
Nichols, Rhodes E., (Hon.)—	—Durham, Rt. 8
*Nicholson, B. M.	Enfield
Nicholson, C. R.	Statesville

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
*Nicholson, John L.	Washington
*Nicholson, N. G., Jr.	Mt. Gilead
Nicholson, P. A., (Hon.)	Washington
*Nisbet, D. Heath	Charlotte
Nisbet, Walter O., (Hon.)	Charlotte
*Noble, R. P.	Raleigh
Nobles, Jos. E., (Hon.)	Greenville
*Noblin, Roy L.	Oxford
*Noell, R. H.	Rocky Mount
Norburn, C. S.	Asheville
*Norburn, R. L.	Asheville
Norfleet, A. C.	Tarboro
*Norfleet, E. P.	Roxobel
Norman, J. S.	Hickory
Norment, W. B.	Greensboro
Norris, Henry	Waverly Mills, S. C (Rutherford Co.)
*Northington, J. M.	Charlotte
*Norton, Roy	Rocky Mount
*Nowell, S. C.	Hickory
*Nowlin, Preston	Charlotte
*O'Briant, A. L.	Sanford
Odell, J. W.	Dunn
*Ogburn, H. H.	Greensboro
Olive, P. W.	Fayetteville
*Oliver, A. S.	Raleigh
*Oliver, Robt. D.	Princeton
*Ormand, J. W.	Monroe
*Orr, Chas. C.	Asheville
Orr, P. B., (Hon.)	Asheville
Osborne, Joe E.	Rosman
*Outlaw, J. K.	Albemarle
*Overcash, W. E.	Southern Pines
Owen, D. S.	Fayetteville
Owen, J. F.	Dix Hill, Raleigh
*Owenby, Arthur D.	Greensboro
*Pace, K. B.	Greenville
*Paddison, J. R.	Kernersville
Padgett, Chas. K.	Waynesville
Page, B. W.	Trenton
Palmer, Horace	Littleton
Palmer, M. C.	Tryon
Palmer, Yates S.	Valdese
*Papineau, A.	Sanatorium
Parker, G. E., (Hon.)	Benson
Parker, Geo. F.	Asheville
*Parker, H. R.	Greensboro
Parker, J. W., Jr.	Seaboard
*Parker, O. L.	Clinton
*Parker, Paul G.	Erwin
Parker, S. F.	Shelby
Parker, W. T.	Fayetteville
Parks, Hugh	Elkin
Parks, W. B.	Gastonia
Parrott, Albert DeK.	Kinston
Parrott, Jas. M., (Hon.), OALR—	—Raleigh
Parrott, M. C.	Kinston
Parrott, Wm. T., (Hon.)	Kinston
Parsons, W. H.	Ellerbe
*Pate, F. J., OALR	Greensboro
*Pate, Jas. G.	Gibson
Pate, J. F.	Canton
Patrick, Geo. R., Jr.	Bessemer City
*Patterson, Fred M.	Greensboro
Patterson, J. H.	Broadway
*Patterson, Reid	Charlotte
Payne, J. W.	Hendersonville
*Pearson, H. O.	Pinetops
*Peede, A. W.	Lillington
Peeler, Clarence N., OALR	Charlotte
Peeler, John H.	Salisbury
*Peery, Vance P.	Kinston
*Peete, C. H.	Warrenton
Pendleton, Wilson	Asheville
*Pepper, Jno. Kerr	Winston-Salem
Perkins, Jno. R., OALR	Winston-Salem
Perry, A. H.	Wood
*Perry, D. R.	Durham
Perry, E. M.	Rocky Mount
Perry, H. B.	Boone
Perry, H. G.	Louisburg
*Person, Edgar C., OALR	Pikeville
*Person, J. B., Jr., (Hon.)	Selma
*Persons, Elbert Lapsley	Durham
Peters, W. A.	Elizabeth City
*Peterson, C. A.	Spruce Pine
Petrie, Robt. Wm., (Hon.), OALR—	—Murphy
Petteway, George H.	Charlotte
*Pfohl, Samuel F., (Hon.)	Winston-Salem
*Phillips, C. C.	Charlotte
Phillips, C. H.	Thomasville
*Pickett, John A., (Hon.)—	—Burlington, R. F. D., 1
Pittman, E. E.	Oak City
*Pittman, M. A.	Wilson
*Pittman, R. L.	Fayetteville
*Pittman, W. A.	Fayetteville
*Poate, E. M.	Southern Pines
Pollard, W. B.	Winton
Pollock, Raymond	New Bern
Pool, B. B.	Winston-Salem
Poole, C. G.	Winston-Salem
Poole, C. T.	St. Pauls
*Pope, Henry T., (Hon.)	Lumberton

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Post, J. J.	Greensboro
Powell, Albert H.	Durham
Powell, Herman S.	Bailey
Powell, Jesse A.	Edenton
*Powers, Frank P.	Wilmington
Powers, John B.	Wake Forest
Pressly, Geo. W., (Hon.)	Charlotte
Pressly, J. L.	Statesville
*Pressly, J. M.	Belmont
Price, H. L.	Taylorsville
Price, K. A.	Hickory
Pritchard, G. L.	Black Mountain
*Proctor, I. M.	Raleigh
Pugh, Chas. H.	Gastonia
Purdy, J. J.	Oriental
Putney, R. H.	Elm City
Quickel, Thos. C., (Hon.)	Gastonia
Quinn, David E.	Oteen
Quinn, Robert F.	Magnolia
*Raby, J. G.	Tarboro
*Rainey, W. T.	Fayetteville
Reeves, J. L.	Canton
*Reeves, Robert J.	Durham
Reeves, R. J.	Leicester
Ramseur, W. L.	Kings Mountain
Ramsey, James G.	Salisbury
Rand, E. G.	Raleigh
*Rankin, Pressly R.	Mt. Gilead
Rankin, R. B.	Concord
*Rankin, S. W.	Winston-Salem
*Rankin, Watson S., (Hon.)	Charlotte
*Ranson, J. Lester	Charlotte
*Ravenel, S. F.	Greensboro
Ray, F. L.	Charlotte
*Ray, John B.	Leaksville
Ray, O. L., (Hon.)	Raleigh, Rt. 1
*Ray, S. P.	Leaksville
*Rea, G. L.	Charlotte
Reaves, W. P., OALR	Greensboro
Redding, Alex H., (Hon.)	Cedar Falls
*Redfern, T. C.	Winston-Salem
Redwine, J. Dan	Lexington
Reed, D. H.	Maxton
*Reeves, G. F.	Goldsboro
*Register, F. M., (Hon.)	Kinston
Reid, Geo. P., (Hon.)	Forest City
Reitzel, C. E., (Hon.)	High Point
*Reynolds, C. V., (Hon.)	Asheville
Rhodes, Jas. S.	Williamston
*Rhudy, Booker E.	Greensboro
*Rhyne, Robt. E.	Gastonia
Rhyne, S. A.	Statesville
Rich, J. C.	Candler
Richardson, W. P.	Winston-Salem
*Ricks, Leonard E., (Hon.)	Fairmont
Riggsbee, A. E.	Durham
*Ringer, Paul H.	Asheville
*Roberson, Foy	Durham
Roberts, Bryan N.	Hillsboro
Roberts, R. W.	Durham
Roberts, W. M.	Gastonia
*Robertson, E. M.	Durham
*Robertson, James F.	Wilmington
*Robertson, J. M.	Charles
Robertson, W. Burdett	Burnsville
*Robertson, J. N.	Fayetteville
*Robertson, L. H.	Salisbury
*Robinson, C. W.	Charlotte
Robinson, D. E.	Burlington
Robinson, E. E.	Kannapolis
Robinson, Robt. S.	Hazelwood
Robinson, W. A.	Old Fort
Rodman, J. C., (Hon.)	Washington
Rodwell, Jno. W., (Hon.)	Mocksville
Rogers, Jas. Rufus, (Hon.)	Raleigh
Rogers, W. A., (Hon.)	Franklin
*Root, Aldert S.	Raleigh
Rose, A. H.	Smithfield
*Rose, David J.	Goldsboro
Rose, James	Pikeville
*Ross, Geo. H., (Hon.)	East Durham
Ross, Robert A.	Durham
Ross, Robt. D.	Wadesboro
*Rosser, R. G.	Vass
*Rourk, M. H.	Wilmington
*Rousseau, J. P.	Winston-Salem
*Royal, Ben F.	Morehead City
*Royal, D. M.	Salemburg
*Royall, M. A., (Hon.)	Elkin
*Royster, Hubert A., (Hon.)	Raleigh
Royster, S. S., (Hon.)	Shelby
Royster, Thomas H.	Roanoke Rapids
*Royster, Thos. S.	Henderson
Rucker, A. A.	Rutherfordton
Rudisill, J. D.	Lenoir
*Ruffin, D. W.	Ahoskie
Ruffin, J. B.	Powellsville
*Ruffin, J. M.	Durham
Russell, C. R.	Granite Falls
Russell, Jesse M.	Canton
Russell, W. M.	Asheville
Sabiston, Frank, OALR	Kinston
*Sadler, R. C.	Whiteville
Saliba, M. M., OALR	Wilson
Sample, R. C.	Hendersonville
Sams, W. A.	Marshall

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Salley, E. McQueen	Hendersonville
Salmons, H. C.	Elkin
Sasser, T. J.	Charlotte
Saunders, Joseph H.	Williamston
*Saunders, John R.	Lewiston
Saunders, S. A.	Aulander
*Saunders, S. Stewart	High Point
Sawyer, Chas. J., (Hon.), OALR—	—Windsor
*Sawyer, W. W., (Hon.)	Elizabeth City
Schaffle, Karl	Asheville
Schallert, P. O.	Winston-Salem
Schenk, Sam M.	Shelby
Schoenheit, E. W.	Asheville
Schonwald, J. T., (Hon.)	Wilmington
*Schoonover, R. A.	Greensboro
Schuler, J. E.	East Durham
Scott, R. C.	Asheville
Scott, S. F.	Union Ridge
Scruggs, W. Marvin	Charlotte
Seay, Hillis L.	Huntersville
*Seay, T. W.	East Spencer
Sessoms, E. T.	Roseboro
Sevier, D. E., (Hon.)	Asheville
Sevier, J. T., (Hon.)	Asheville
*Sewell, Marion H.	Jackson
Shafer, Irving E.	Salisbury
*Shands, Alfred Rives, Jr.	Durham
*Sharpe, C. R.	Lexington
*Sharpe, F. A.	Greensboro
Sharpe, Frank L.	Statesville
*Shaver, W. T.	Albemarle
*Shaw, J. A.	Fayetteville
Shaw, L. R.	Statesville
*Shaw, W. G., (Hon.)	Wagram
*Shelburne, P. A.	Greensboro
Sherrill, C. L.	Statesville
*Shields, Henry B., (Hon.)	Carthage
Shirley, H. C., OALR	Charlotte
Shore, T. W.	Boonville
Shull, J. Rush	Charlotte
Sidbury, J. B.	Wilmington
*Sigman, F. G.	Spencer
Sikes, G. L., (Hon.)	Salemburg
*Sikes, Henry	Greensboro
*Simmons, L. L., OALR	Greensboro
Simmons, R. R.	Winston-Salem
*Simpson, H. H.	Altamahaw
Singletary, G. C.	Clarkton
Sink, C. S.	N. Wilkesboro
Sisk, C. N.	Waynesville
Skinner, Louis C., (Hon.)	Greenville
Slate, John S.	Winston-Salem
Slate, J. W.	High Point
Slate, M. L.	High Point
Slate, Wesley C.	Spencer
*Sloan, A. B.	Mooresville
Sloan, D. B., OALR	Wilmington
*Sloan, H. L., Oph.	Charlotte
Sloan, Wm. H.	Garland
*Sloop, Eustace H.	Crossnore
Small, Victor R.	Clinton
Smith, A. Jones	Black Creek
Smith, Alick T.	Greensboro
*Smith, Annie T.	Durham
Smith, B. R.	Asheville
Smith, C. T.	Rocky Mount
Smith, D. L.	Saluda
*Smith, D. T.	Durham
Smith, F. C., OALR	Charlotte
*Smith, F. G.	Wilson
Smith, F. L.	Burlington
Smith, G. M.	Monroe
Smith, Harold Benj.	North Wilkesboro
Smith, J. A.	Lexington
Smith, James T.	Westfield
*Smith, John McNeill	Rowland
Smith, Jos. E.	Windsor
Smith, Joseph	Greenville
Smith, O. F.	Scotland Neck
Smith, R. E.	Mt. Airy
*Smith, Sidney	Raleigh
Smith, Slade A.	Wilmington
Smith, W. F.	Chadbourn
Smith, W. G.	Wendell
Smith, William Gordon	Thomasville
*Smith, Wm. H.	Goldsboro
Smithwick, Jas. E., (Hon.)	Jamesville
Smoot, J. E., (Hon.)	Concord
*Soady, J. H.	Asheboro
Sorrell, F. Y.	Wadesboro
Sossamon, J. C.	Midland
*Sowers, Roy G.	Jonesborc
Spainhour, Ellis H., (Hon.)—	—Winston-Salem
*Sparrow, Thos. DeL.	Charlotte
Speas, D. C.	Winston-Salem
*Speas, W. P., OALR	Winston-Salem
Speed, J. A.	Durham
Speight, J. A.	Rocky Mount
Spencer, Frederick B.	Salisbury
Spencer, Wm. O., (Hon.)	Winston-Salem
*Spicer, Richard W.	Winston-Salem
Spikes, N. O.	Durham
*Spoon, S. C.	Burlington
Sprinkle, C. N.	Weaverville

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Spruill, Jos. L.	Jamestown
*Sprunt, W. H., Jr.	Winston-Salem
*Squires, Claude B.	Charlotte
Staley, S. Walter	Rocky Mount
*Stancil, Wm. W.	Rockingham
*Stanford, Lois Foote	Durham
*Stanford, W. R.	Durham
Stanley, John H.	Four Oaks
*Stanton, D. A., (Hon.)	High Point
*Starr, H. F.	Greensboro
Staton, L. R.	Lynchburg, Va. (Henderson Co.)
Stephens, A. H., Jr.	Farmville
*Stevens, M. L., (Hon.)	Asheville
Stewart, J. T.	Summerfield
*Stimpson, R. T.	Raleigh
Stirewalt, Neal S.	High Point
Stokes, Jas. E., (Hon.)	Salisbury
Stone, M. L.	Rocky Mount
Stone, Wesley M.	Dobson
Straughan, J. W.	Warsaw
*Street, C. A.	Winston-Salem
*Street, M. E., (Hon.)	Glendon
Stretcher, R. H.	Waynesville
Strickland, E. F., (Hon.)	Winston-Salem
*Strickland, E. L.	Wilson
Strickland, W. M.	Wendell
Stringfield, Samuel L.	Waynesville
Stringfield, Thos., (Hon.)	Waynesville
Strong, Chas. M., (Hon.)	Charlotte
Strosnider, Chas. F.	Goldsboro
Strowd, W. A.	Durham
Suiter, W. G.	Weldon
Sullivan, Victor	Wilmington
Summerell, E. M., (Hon.)	China Grove
*Sumner, E. A.	High Point
*Sumner, G. H.	Asheboro
Sumner, Howard L.	Asheville
Sumner, Thos. W.	Fletcher
*Sutton, Carl W.	Richlands
Swann, C. C.	Asheville
Swann, Jos. F., (Hon.)	Gastonia
*Sweaney, H. M.	Durham
Swindell, C. L.	Grimesland
Swindell, Lewis H.	Washington
*Sykes, J. B.	Rocky Mount
*Sykes, R. P.	Asheboro
*Symington, John	Carthage
*Tally, B. T.	Albemarle
Talley, J. A.	Troutman
*Tankersley, J. W.	Greensboro
*Tate, C. S.	Ramseur
Tate, W. C.	Banner Elk
Tatum, Roy C.	Statesville
*Tatum, Walter Lowe	Salisbury
Tayloe, D. T., Jr.	Washington
*Tayloe, John Cotten	Washington
Tayloe, Joshua, Jr.	Washington
*Taylor, E. H. E.	Morganton
*Taylor, F. R.	High Point
Taylor, G. W.	Mooresville
Taylor, H. C.	Charlotte (Chadwick Station)
Taylor, James N.	Greensboro
*Taylor, James T.	Greensboro
*Taylor, R. W.	Oxford
*Taylor, S. R., OALR	Greensboro
Taylor, T. G.	Leaksville
Taylor, W. I.	Burgaw
*Taylor, Wesley	Greensboro
*Taylor, Wm. L., (Hon.)	Oxford
*Teague, S. E.	Hamlet
Templeton, J. Y.	Mooresville
*Tennent, G. S., (Hon.), OALR—	—Asheville
*Terry, Geo. H. B.	Oteen
*Terry, J. R.	Lexington
Terry, Wm. Calvin	Hamlet
*Thaxton, B. A.	Roxboro
Thigpen, H. G.	Scotland Neck
*Thomas, C. D.	Sanatorium
*Thomas, W. N.	Oxford
*Thompson, A. F., (Hon.), OALR	Troy
*Thompson, C. D., (Hon.)	High Point
Thompson, Edg. S.	Winston-Salem
Thompson, H. C.	Shelby
Thompson, Hugh A.	Raleigh
*Thompson, Joseph W.	Creedmoor
*Thompson, S. R.	Charlotte
Thompson, S. W., Jr.	Morehead City
*Thornton, W. F.	Sanatorium
Thorp, A. T.	Rocky Mount
Thurston, Asa	Taylorsville
Tice, W. T.	High Point
Timberlake, C. V.	Youngsville
Timberlake, R. E.	Youngsville
Todd, L. C.	Charlotte
Triplett, W. R.	Purlear
Trivette, W. A.	Houstonville
Troxler, R. M.	Burlington
*Tucker, Jno. H.	Charlotte
Tugman, B. W.	West Jefferson
Turley, F. C.	Kinston
Turlington, W. I., Jr.	Jacksonville
*Turner, H. G.	Raleigh
Turner, J. P., (Hon.)	Greensboro

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Turrentine, Kilby P.	Kinston
*Tuttle, Reuben G.	Winston-Salem
Tuttle, A. F.	Spray
Tydeman, F. W. L.	San Francisco, Cal. (Mecklenburg Co.)
Tyndall, R. G.	Kinston
Tyner, Carl V.	Leaksville
*Tyson, J. J.	Ayden
Tyson, T. D.	Mebane
*Underwood, O. E.	Roseboro
Upchurch, Robert T.	Henderson
Utley, H. H.	Benson
*Valk, A. deT.	Winston-Salem
Vann, H. M.	Wake Forest
Vann, J. R.	Spring Hope
*Verdery, W. C.	Fayetteville
Verner, Carl Hugh	Forest City
Vernon, Jas. W.	Morganton
*Vestal, T. F.	Winston-Salem
Vestal, Willis J., (Hon.)	Lexington
Vick, Chas. L.	Seaboard
Vick, George D.	Selma
Wakefield, Harry A., OALR	Charlotte
*Walker, H. D., (Hon.)	Elizabeth City
Walker, J. B.	Burlington
Walker, L. K.	Ahoskie
*Wall, R. L.	Winston-Salem
*Walters, Chas. M.	Burlington
*Walton, C. L.	Glen Alpine
Wannamaker, Edw. J., Jr.	Charlotte
Ward, I. A., OALR	Elizabeth City
Ward, Jesse E.	Robersonville
*Ward, John LaB.	Asheville
Ward, Vernon A.	Robersonville
*Ward, W. C.	Pineville
*Ward, W. T.	Raleigh
*Warren, R. F.	Prospect Hill
Warrick, L. A.	Goldsboro
Watkins, F. B.	Morganton
Watkins, G. T.	Durham
Watkins, W. M.	Durham
Watson, John B.	Raleigh
Watson, Paul S.	Madison
*Watson, Thos. M.	Greenville
*Weathers, Bahnson	Roanoke Rapids
*Weathers, R. R.	Knightdale
Weaver, Henry B., (Hon.)	Asheville
Weaver, H. J.	Hamptonville
Weaver, W. J.	Rt. 4, Asheville
Webb, B. G., (Hon.)	Andrews
Weddington, J. L.	Hendersonville
Weizenblatt, Sprinza	Asheville
Wellborn, William R.	Elkin
Wessell, John C., (Hon.)	Wilmington
West, B. C.	Kinston
West, C. F.	Kinston
*West, Louis N., OALR	Raleigh
West, Robert M., (Hon.)	Salisbury
Westcott, W. E.	Candler
Westmoreland, J. R.	Canton
Wheeler, J. H.	Henderson
Wheless, W. P.	Spring Hope
Whelpley, Frank L.	Goldsboro
Whichard, M. P.	Edenton
Whicker, Guy E.	China Grove
Whicker, Guy L.	Kannapolis
Whims, H. C.	Waxhaw
Whisnant, Albert M., (Hon.)	Charlotte
Whitaker, Paul F.	Kinston
*Whitaker, R. B.	Whiteville
*White, R. A.	Asheville
White, Thos. P.	Charlotte
White, W. H. C.	Elizabeth City
Whitehead, Edward	Salisbury
Whitehead, S. L.	Asheville
Whitfield, Wm. Cobb, (Hon.)	Salisbury
*Whittington, Claude	Greensboro
Whittington, Jas. B.	Winston-Salem
Whittington, W. W., (Hon.)	Snow Hill
Wieters, John C.	Bryson City
*Wilkerson, Charles B.	Raleigh
*Wilkerson, Charles E.	Greensboro
Wilkes, Grover C.	Sylva
*Wilkes, Marcus B.	Laurel Hill
*Wilkins, J. C.	Haw River
Wilkins, J. W., OALR	Mt. Olive
*Wilkins, R. B., OALR	Raleigh
Wilkins, S. A., (Hon.)	Dallas
Wilkinson, C. T.	Wake Forest
Wilkinson, R. W.	Wake Forest
Wilcox, J. W.	Schenectady, N. Y. (Scotland Co.)
Williams, Albert F., (Hon.)	Wilson
*Williams, Claude B.	Elizabeth City
*Williams, J. H.	Sanatorium
Williams, John D., (Hon.)	—Guilford Station
Williams, L. L.	Asheville
Williams, Lester L.	Marion
Williams, L. P.	Edenton
Williams, Wm. N.	Tabor
Willis, A. P.	Candler
Willis, B. C.	Rocky Mount
Willis, H. C., OALR	Wilson
Willis, W. M.	Farmville
Wilson, Albert R., (Hon.)	Greensboro

* Present at 1934 Meetng at Pinehurst.

Name	*Address*
Wilson, N. G.	Madison
Wilson, R. B.	Asheville
Wilson, Robert B., (Hon.)—	—Newton Grove
*Wilson, S. Glenn	Clinton
*Wilson, W. G.	Smithfield
Wingate, G. C.	Charlotte
Winkler, Harry	Charlotte
Winstead, E. G.	Belhaven
*Winstead, J. A.	Rocky Mount
*Winstead, J. L.	Greenville
*Winston, P. H.	Raleigh
Wiseman, P. H.	Avondale
Wishart, Wm. E.	Charlotte
*Wolfe, H. C., OALR	Greensboro
Wolfe, N. C.	Burgaw
*Wolff, D. R.	Greensboro
Woltz, John L.	Mt. Airy
Wood, Frank	Marion
Wood, J. W., (Hon.)	Boiling Springs
*Woodard, A. G.	Goldsboro
*Woodard, C. A.	Wilson
*Woodard, G. B.	Wilson
*Woodcock, John H.	Hendersonville
*Woodruff, Fred G.	High Point
*Woodson, Charles W.	Salisbury
Woodward, J. G.	Asheville
Wooten, Amos Monroe	Pinetops
Wooten, Floyd P.	Kinston
*Wooten, W. I.	Greenville
*Wright, J. B., (Hon.), OALR	Raleigh
*Wright, O. E.	Winston-Salem
*Wyatt, A. T.	Lillington
Wyatt, Wortham	Winston-Salem
Wylie, W. deK.	Winston-Salem
*Yarborough, Frank R.	Cary
Yarborough, R. F., (Hon.)	Louisburg
*Yoder, Paul A.	Winston-Salem
*Yokeley, Raymon V.	Thomasville
*York, Alexander Arthur	High Point
Young, G. McD.	Postell
Young, J. C.	Asheville
Yow, I. A.	Concord
*Zealy, A. H., Jr.	Goldsboro
*Ziegler, M. V.	Raleigh
*Zimmerman, Robert U.	Welcome

* Present at 1934 Meetng at Pinehurst.

ROSTER OF FELLOWS FOR 1934

BY COUNTIES

NOTE:—Every physician in the state whose name we could secure has had an opportunity to supply correct information as to his name, postoffice, academic and medical education, date of State license and date State Society was joined. A few did not take advantage of the opportunity. Anyone finding an error should report it to the Secretary of the society.

ALAMANCE-CASWELL COUNTIES SOCIETY

Name and Address	Licensed	Joined State Society
President: A. J. Ellington, Burlington; Columbia Univ., 1915	1915	1917
Secretary: S. C. Spoon, Burlington; Univ. of Md., 1918; U.N.C.	1918	1920
Anderson, Chas. A., Burlington, (Hon.); Coll. P. and S., Balt., 1901	1893	1896
Bell, F. O., Burlington; Atlanta Med. Coll., 1918	1921	1928
Braddy, Wade Hampton, Burlington; Univ. of N. C., 1909	1909	1913
Brooks, R. E., Burlington; Jeff. Med. Coll., 1920; U.N.C.	1920	1922
Carlyle, J. B., Burlington; Jeff. Med. Coll., 1926; U.N.C.	1926	1928
Carrington, G. L., Burlington; Johns Hopkins, 1920; U.N.C.	1920	1925
Cook, W. E., Mebane	.....	1934
Goley, Willard Coe, Graham; Univ. of Pa., 1924; U.N.C.	1924	1924
Goley, Wm. R., Graham, (Hon.); P. and S., Balt., 1885	1885	1893
Gwyn, H. L., Yanceyville; Med. Coll. Va., 1923	1923	1925
Harden, Graham, Burlington; Univ. of Pa., 1919	1920	1922
Hill, A. L., Burlington; Univ. of Pa	1930	1932
Johnson, Jos. L., Graham; Jeff. Med. Coll., 1926	1926	1930
Lupton, C. C., Burlington; Temple, 1931; U.N.C.	1931	1934
McDade, B. B., Burlington; Univ. of Md., 1918; U.N.C.	1918	1920
McPherson, C. W., Burlington; Univ. of Md., 1910; U.N.C.	1910	1912
McPherson, R. G., Saxapahaw; Univ. of N. C., 1908	1908	1909
Malloy, S. A., Yanceyville, (Hon.); Ky. School Med., 1897	1898	1903
Moore, Henry Blanchard, Graham; Jeff. Med. Coll., 1920	1920	1923
Pickett, J. A., Burlington, R.F.D., 1, (Hon.); Univ. of Tenn., Coll. of Med., 1894	1894	1904
Robinson, D. E., Burlington; Harvard Med. Coll., 1927	1929	1930
Scott, S. F., Union Ridge; Univ. of Pa., 1918; U.N.C.	1918	1920
Simpson, H. H., Altamahaw; Univ. of Md., 1925	1925	1926
Smith, F. L., Burlington; Univ. of Pittsburg, 1927	1927	1928
Troxler, R. M., Burlington; Univ. of Md., 1914	1914	1915
Tyson, T. D., Mebane; Univ. Coll. of Med., Richmond, 1899	1899	1904
Walker, J. B., Burlington; Med. Coll. Va., 1914; U.N.C.	1914	1916
Walters, C. M., Burlington; Univ. of Md. and P. and S., Balt., 1908; U.N.C.	1908	1909
Warren, R. F., Prospect Hill; Atlanta School of Med., 1911	1911	1919
Wilkins, J. C., Haw River; Univ. of Md., 1911; U.N.C.	1911	1920

ANSON COUNTY SOCIETY

President:	.....	.....
Secretary: F. Y. Sorrell, Wadesboro; Jeff. Med. Coll., 1930	1930	1933
Allen, Chas. I., Wadesboro; Columbia Univ. Coll. P. and S., 1913	1913	1922
Bennett, Jos. H., Wadesboro; Univ. of Md., 1894	1894	1904
Covington, J. M., Wadesboro; Med. Coll. of S. C., 1874; U.N.C.	1879	1879
Covington, Platt W., 1479 Harrison Ave., Salt Lake City, Utah; Univ. of Md., 1908	1908	1914

Name and Address	Licensed	Joined State Society
Davis, J. M., Wadesboro; Columbia Univ., 1913	1913	1920
Hart, Jno. E., Wadesboro; P. & S., Balt., 1897; U.N.C.	1897	1904
McGoogan, Benj. J., Morven; Univ. of Md., 1912; U.N.C.	1912	1923
Ross, Robt. D., Wadesboro; N. Y. Univ., 1890	1890	1912

AVERY COUNTY SOCIETY

President: R. H. Hardin, Banner Elk; N. C. Med. Coll., 1914	1914	1919
Secretary: B. B. McGuire, Newland; Jeff. Med. Coll., 1918; U.N.C.	1919	1928
Burleson, W. B., Plumtree; Univ. Md., 1915; U.N.C.	1915	1916
Sloop, Eustace H., Crossnore; N. C. Med. Coll., 1905; Jeff. Med. Coll., 1908	1905	1909
Tate, W. C., Banner Elk; Tenn. Med. Coll., 1908	1909	1912

BEAUFORT COUNTY SOCIETY

President: Lewis H. Swindell, Washington; Univ. of Pa., 1916; U.N.C.	1916	1919
Secretary: D. E. Ford, Washington; Univ. of Mich., 1908	1925	1924
Bonner, J. B., Aurora; Univ. of Md. School of Med. and Coll. P. and S., 1918; U.N.C.	1918	1920
Carter, H. W., Washington; Univ. of Va., 1895; U.N.C.	1895	1910
Kluttz, DeWitt, Washington; Univ. of Pa., 1918; U.N.C.	1919	1921
Mariner, N. B., Belhaven; Univ. Coll. of Med. Va., 1903	1903	1903
Nicholson, John L., Washington; Univ. of Md. & Coll. P. & S., 1904	1904	1904
Nicholson, P. A., Washington, (Hon.); P. and S., Balt., 1889	1889	1890
Rodman, J. C., Washington, (Hon.); Bellevue Med. Coll., 1892	1892	1893
Tayloe, D. T., Jr., Washington; Univ. of Pa., 1919; U.N.C.	1919	1922
Tayloe, John Cotton, Washington; Univ. of Pa., 1922; U.N.C.	1924	1925
Tayloe, Joshua, Jr., Washington; Univ. of Pa., 1923; U.N.C.	1923	1926
Winstead, E. G., Belhaven; Med. Coll. Va., 1929	1929	1930

BERTIE COUNTY SOCIETY

President: Frank H. Garris, Lewiston; Jeff. Med. Coll., 1912	1912	1918
Secretary: S. A. Saunders, Aulander; Jeff. Med. Coll., 1914; U.N.C.	1914	1918
Castelloe, Cola, Windsor; Univ. of Pa., 1917; U.N.C.	1917	1926
Evans, L. B., Windsor; Univ. Coll. of Med., 1900, U.N.C.	1900	1907
Lyon, Henry Wise, Windsor; Univ. of Pa. Sch. of Med., 1918; U.N.C.	1919	1920
Norfleet, E. P., Roxobel; Va. Med. Coll., 1914	1914	1920
Saunders, John Rudolph, Lewiston; Emory Univ., 1926	1926	1931
Sawyer, Charles Judson, Windsor, (Hon.); P. and S., Balt., 1895	1895	1897
Smith, Jos. Elmer, Windsor; Med. Coll. of Va., 1921	1921	1922

BLADEN COUNTY SOCIETY

President:	.....	.....
Secretary: E. S. Clark, Clarkton; Med. Coll. of Va., 1914	1914	1915
Bennett, E. C., Elizabethtown; Med. Coll of Va., 1926	1926	1927
Bridger, D. H., Bladenboro; Jeff. Med. Coll., 1922	1922	1925
Clark, D. D., Clarkton, Med. Coll. of Va., 1917	1917	1920
Hutchinson, S. S., Bladenboro; N. C. Med. Coll., 1911	1911	1917
Singletary, G. C., Clarkton; Univ. of Pa. School of Med., 1917; U.N.C.	1917	1918

BRUNSWICK COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....

Name and Address	Licensed	Joined State Society
Dosher, Wm. S., Southport	.....	1934
Goley, Wm. R., Shallotte; Univ. Coll. of Med., Richmond, 1901	1901	1904

BUNCOMBE COUNTY SOCIETY

President: A. C. McCall, Asheville; Univ. of Md., 1910; U.N.C.	1910	1912
Secretary: M. S. Broun, Asheville; Columbia University Coll. of P. S., 1919	1922	1923
Adams, J. L., Asheville; Jeff. Med. Coll., 1910	1910	1913
Archer, Isaac J., Black Mountain; Northwestern Univ. Med. School, 1896	1905	1907
Baier, Geo. F., Jr., W. Asheville; Hahnemann Med. Coll., 1906	1920	1930
Baker, W. E., Arden; Chattanooga Med. Coll., 1908; U.N.C.	1915	1916
Beall, L. G., Black Mountain; N. C. Med. Coll., 1906; Univ. of Pa., 1911	1906	1912
Blumberg, Alfred, Oteen; Sch. Med. Univ. of Colo., 1923	1928	1929
Brewton, W. A., Enka; Univ. of Pa., 1927	1927	1929
Briggs, Henry H., Jr., Asheville; Yale, 1931	1933	1934
Brookshire, Harley G., Asheville; N. C. Med. Coll., 1905	1905	1907
Brown, Kermit E., Asheville; Jeff. Med. Coll., 1927	1927	1930
Brownsberger, Ethel, Biltmore; Coll. of Med. Evangelists, 1927	1933	1934
Brownsberger, John F., Biltmore; Coll. of Med. Evan., Los Angeles, 1925	1928	1929
Buckner, J. M., Swannanoa; Univ. N. C., 1909	1909	1912
Carr, Eugene M., Asheville; Johns Hopkins, 1919	1926	1927
Cheesborough, Thomas P., Biltmore, (Hon.); Univ. of N. Y., 1891	1891	1900
Clark, Harold S., Asheville; Univ. of Pa., 1922; U.N.C.	1922	1924
Cocke, C. H., Asheville; Cornell Univ., 1905	1912	1913
Cocke, E. R., Asheville; Jeff. Med. Coll., 1913; U.N.C.	1914	1917
Cocke, Jere E., Asheville; Louisville Med. Coll., 1905	1905	1907
Colby, C. deW., Asheville; Univ. of Mich., 1892; Army Med. School, 1895	1909	1912
Cotten, Clyde E., Asheville, (Hon.); Univ. of Wooster, 1889	1901	1901
Crow, S. L., Asheville; Emory Univ., 1925	1926	1927
Crump, Curtis, Asheville; Harvard, 1926	1933	1934
Denchfield, A. L., Asheville; Univ. of N. Y., 1905	1914	1916
Deyton, John W., Asheville; Rush Med. Coll., 1928	.....	1931
Eckel, O. F., Asheville; Med. Coll. of S. C., 1906	1907	1909
Edwards, B. O., Asheville; N. C. Medical Coll., 1905	1905	1909
Edwards, C. P., Asheville; Tennessee Med. Coll., 1900	1903	1921
Elias, Lewis W., Asheville; Columbia Univ. Coll. of P. and S., 1903	1906	1907
Floyd, H. T., Oteen; Johns Hopkins Univ., 1923	1926	1927
Fox, Robt. Eugene, 706 Hunting Ave., Boston, Mass., Univ. of Pa., 1926	1926	1929
Freeman, Wm. T., Biltmore; Univ. of Ga., 1917	1927	1929
Gaskins, C. W., Asheville; Univ. of Tenn., 1932	1933	1934
George, John C., Oteen; Miami Med., 1906	1925	1927
Godwin, G. C., Oteen; Med. Coll. Va., 1915	1915	1920
Grantham, Wm. L., Asheville; N. C. Med. Coll., 1906	1906	1911
Greene, Jos. B., Asheville; Univ. of Va., 1893	1910	1911
Greenwood, A. B., Asheville; Johns Hopkins, 1916, U.N.C.	1916	1918
Griffin, M. A., Asheville; Jeff. Med. Coll., 1917; U.N.C.	1917	1918
Griffin, W. R., Asheville; Jeff. Med. Coll., 1910	1910	1917
Griffith, F. W., Asheville; Johns Hopkins, 1906	1911	1912

Name and Address	Licensed	Joined State Society
Griffith, L. M., Asheville; Johns Hopkins, 1915	1916	1917
Harrison, H. H., Asheville; Jeff. Med. Coll., 1905; U.N.C.	1905	1918
Hensley, Chas. A., Asheville; Jeff. Med. Coll., 1917	1917	1927
Herbert, Wm. P., Asheville; Univ. of Va., 1907	1910	1911
Hipps, A. G. T., Asheville; Jeff. Med. Coll., 1916	1916	1920
Hollyday, W. M., Asheville; Univ. of Maryland, 1908	1914	1915
Huffines, T. R., Asheville; Indiana Univ. Med. School, 1919	1922	1923
Huston, Jno. Walter, Asheville; Rush Med. Coll., 1904	1912	1913
Ingersoll, Louise M., Asheville; Woman's Med. Coll., 1914	1925	1927
Ivey, R. R., U. S. P. H. S., Biltmore; Univ. of Ala., 1909	1921	1921
Johnson, Walter R., Asheville; Univ. Minnesota, 1924	1933	1934
Jones, Catesby, Asheville; Univ. of Md., 1893	1931	1932
Jordan, Charles S., Asheville, (Hon.); Univ. of N. Y., 1890	1891	1899
Justice, Wm. S., Asheville; Harvard Univ., 1926; U.N.C.	1930	1931
King, Edward, 1060 Park Ave., New York, N. Y.; Harvard Med. Sch., 1917	1921	1922
Kutscher, G. W., Jr., Swannanoa; Univ. of Pittsburgh, 1923	1925	1926
Lord, Marjery J., Montreat; Univ. of Mich., 1916	1918	1918
Lott, Wm. C., Asheville; Univ. of Colo., 1929	1930	1931
Lynch, J. M., Asheville; Univ. of Md., 1904; U.N.C.	1912	1913
MacRae, J. D., Jr., Asheville; Univ. of Pa. Med. School, 1927; U.N.C.	1927	1930
McCracken, C. M., Fairview, (Hon.); N. C. Med. Coll., 1896	1896	1904
Matros, Nathaniel H., Oteen; Marquette Univ., 1930	1933	1934
Mears, George A., Asheville; Med. Coll. Syracuse Univ., 1924	1924	1927
Millander, Chas. W., Asheville; Tulane Univ., 1919	1921	1924
Montgomery, Kenneth E., Asheville; Univ. Louisville, 1917	1920	1920
Moore, Julian A., Asheville; Univ. of Pa., 1918; U.N.C.	1918	1921
Morgan, B. E., Asheville; Univ. of Tenn., 1917	1921	1921
Morgan, G. A., Asheville; Univ. of Tenn., 1917	1920	1925
Murphy, Gibbons W., Asheville; Emory Univ., 1923	1923	1927
Norburn, Chas. S., Asheville; Univ. of Va., 1917; U.N.C.	1921	1924
Norburn, R. L., Asheville; Vanderbilt Univ., 1925	1925	1927
Orr, Chas. C., Asheville; Univ. of Md., 1904; U.N.C.	1904	1905
Orr, P. B., Asheville, (Hon.); Jeff. Med. Coll., 1901; U.N.C.	1901	1904
Parker, Geo. F., Asheville; Univ. of Pa., 1923; U.N.C.	1924	1926
Pendleton, Wilson, Asheville; Univ. of Va., 1908	1919	1920
Pritchard, G. L., Black Mountain; Univ. Coll. of Med., Richmond, 1913	1913	1926
Quinn, David E., Oteen; Geo. Wash. Univ., 1930	1933	1934
Reeves, R. J., Leicester; Vanderbilt Univ., 1913	1913	1922
Reynolds, C. V., Asheville, (Hon.); Univ. of N. Y., 1895	1895	1896
Rich, J. C., Candler; Univ. of Nashville, 1908	1908	1931
Ringer, Paul H., Asheville; Columbia Univ. P. and S., N. Y., 1904	1906	1907
Russell, W. M., Asheville; Univ. of Cincinnati, 1928	1931	1932
Schaffle, Karl, Asheville; Univ. of Pa., 1907	1926	1927
Schoenheit, E. W., Asheville; Jeff. Med. Coll., 1920	1920	1921
Scott, R. C., Asheville; Jeff. Med. Coll., 1902	1916	1919
Sevier, D. E., Asheville, (Hon.); Jeff. Med. Coll., 1895	1895	1899
Sevier, J. T., Asheville, (Hon.); Jeff. Med. Coll., 1895	1895	1899
Smith, B. R., Asheville; Jeff. Med. Coll., 1911	1913	1914
Sprinkle, C. N., Weaverville; Jeff. Med. Coll., 1910; U.N.C.	1910	1922
Stevens, M. L., Asheville, (Hon.); Balt. Med. Coll., 1891	1892	1893
Sumner, Howard L., Asheville; Jeff. Med. Coll.; U.N.C.	1926	1929
Swann, C. C., Asheville; Tulane Univ., 1926	1930	1931

Name and Address	Licensed	Joined State Society
Tennett, G. S., Asheville, (Hon.); N. C. Med. Coll., 1894	1894	1898
Terry, George H. B., Oteen; Jeff. Med. Coll., 1895	1925	1927
Ward, John LaB., Asheville; Med. Coll. of S. C., 1905	1921	1922
Weaver, H. B., Asheville, (Hon.); Washington Univ., 1872	1881	1882
Weaver, W. J., Asheville; Jeff. Med. Coll., 1898; U.N.C	1897	1915
Weizenblatt, Sprinza, Asheville; Vienniese Univ. of Med., 1922	1929	1931
Westcott, W. E., Candler; Coll. Med. Evangelists, 1926	1930	1932
White, R. A., Asheville; Univ. Cin. Coll. of Med., 1918	1920	1921
Whitehead, S. L., Asheville; Jefferson Med. Coll., 1921	1921	1929
Williams, L. L., Asheville; Med. Coll. of S. C., 1880	1924	1927
Willis, A. P., Candler; Univ. of N. C., 1907	1904	1919
Wilson, R. B., Asheville; Univ. of Louisville, 1931	1931	1933
Woodward, J. G., Asheville; Univ. of Pa., 1925; U.N.C	1925	1927
Young, J. C., Asheville; Univ. of Tenn., 1926	1926	1929

BURKE COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Billings, G. M., Morganton; Tulane Univ. of La., 1919	1919	1920
Helms, J. B., Morganton; Univ. of Pa., 1928	1928	1931
Kende, Tibor N., Northport, L. I., N. Y.; Royal Hungarian Univ., Budapest, Hungary, 1922	1927	1928
Kirksey, Jas. J., Morganton; Univ. of Pa., 1921	1921	1923
Long, Benj. L., Glen Alpine; N. C. Med. Coll., 1913	1913	1914
Long, R. H., Morganton; Jeff. Med. Coll., 1916	1916	1923
McCampbell, John, Morganton, (Hon.); Balt. Med. Coll., 1894	1895	1899
Palmer, Yates S., Valdese; Med. Coll. Va., 1931	1931	1933
Taylor, E. H. E., Morganton; Tulane Univ., La., 1924	1924	1925
Vernon, Jas. W., Morganton; Jeff. Med. Coll., 1909	1909	1913
Walton, C. L., Glen Alpine	.....	1933
Watkins, F. B., Morganton; Jeff. Med. Coll., 1907	1907	1910

CABARRUS COUNTY SOCIETY

President:	.....	.....
Secretary: D. G. Caldwell, Concord; Univ. of Pa., 1923; U.N.C	1925	1925
Bowman, C. R., Kannapolis; Med. Coll. Va., 1928	1929	1930
Burns, J. E., Concord; Med. Coll. of Va., 1923	1923	1927
Bunn, J. J., Mt. Pleasant; N. C. Med. Coll., 1912	1913	1915
Gouger, Geo. J., Concord, (Hon.); Univ. of Md., 1891	1891	1899
Ketner, Fred Y., Concord; Med. Coll. of Va., 1928	1929	1930
King, Richard M., Concord; Jeff. Med. Coll., 1903	1903	1907
Lubchenko, N. E., Harrisburg; N. C. Med. Coll., 1915	1915	1916
MacFayden, Paul R., Concord; Univ. Coll. of Med., Richmond, 1901; U.N.C	1901	1904
MacFayden, Paul R., Jr., Concord; Univ. of Va., 1929; U.N.C	1929	1932
Rankin, R. B., Concord; Tulane Univ. of La., 1917; U.N.C	1920	1922
Robinson, E. E., Kannapolis; Med. Coll. of Va., 1927	1927	1929
Smoot, J. E., Concord, (Hon.); Balt. Med. Coll., 1893	1894	1902
Sossamon, J. C., Midland; N. C. Med. Coll., 1915	1917	1918
Whicker, Guy L., Kannapolis; Univ. of Md., 1926	1926	1928
Yow, I. A., Concord; N. C. Med. Coll., 1906	1906	1910

CALDWELL COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: Douglas Hamer, Jr., Lenoir; Med. Coll. of S. C.; U.N.C.	1927	1929
Secretary: Clyde R. Hedrick, Lenoir; Georgetown Med. Sch., 1925; U.N.C.	1925	1926
Blackwelder, Verne H., Lenoir; U.N.C.	.....	1931
Corpening, O. J., Granite Falls; Univ. Coll. of Med. Va., 1906	1906	1907
Dula, Frederick M., Lenoir; Vanderbilt	1934	1934
Goodman, A. B., Lenoir, (Hon.); N. C. Med., 1898	1897	1904
Houck, Albert, Lenoir, (Hon.); P. and S., Balt., 1884	1891	1893
Kent, Alfred A., Winter Pk., Fla., (Hon.); Jeff. Med. Coll., 1885	1885	1894
Kent, Alfred A.., Jr., Granite Falls; Univ. of Pa.; U.N.C.	1934	1934
McNairy, Caroline, Lenoir; Woman's Med. Coll. Pa., 1917	1917	1919
Rudisill, J. D., Lenoir; Univ. of Md., 1922	1922	1923
Russell, C. R., Granite Falls; Univ. Coll. of Med., Richmond, 1909; U.N.C.	1909	1918

CARTERET COUNTY SOCIETY

President:	.....	.....
Secretary: Ben F. Royal, Morehead City; Jeff. Med. Coll., 1909; U.N.C.	1909	1909
Bonner, K. P. B., Morehead City; Med. Coll. of Va., 1905; U.N.C.	1905	1905
Chadwick, W. S., Beaufort; Univ. of Va., 1928	1928	1930
Davis, George, Beaufort; Kentucky School of Med., 1894	1896	1904
Ferebee, C. G., Morehead City; Med. Coll. of Va., 1902	1904	1904
Hyde, Francis Edward, Beaufort; West. Res. Univ., 1920	1925	1926
Johnson, Otis H., Morehead City; Atlanta Med., 1905	1926	1926
Lewis, C. W., Beaufort; Med. Coll. of Va., 1930	1930	1931
Mason, Manly, Newport; Tulane University, 1924; U.N.C.	1924	1925
Maxwell, C. S., Beaufort; Univ. of the South, Sewanee, 1900	1899	1904
Moore, L. W., Beaufort	.....	1933
Thompson, S. W., Jr., Morehead City; Med. Coll. Va., 1913; U.N.C.	1915	1922

CASWELL COUNTY SOCIETY—(See Alamance-Caswell)

CATAWBA COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Caldwell, Lawrence, Newton; Univ. of Penna., 1932	1932	1934
Cloninger, K. L., Conover; Univ. of Md., 1931; U.N.C.	1931	1932
Fresh, W. M., Hickory	.....	1919
Frye, Glenn R., Hickory; Jeff. Med. Coll., 1921; U.N.C.	1921	1923
Griffin, H. W., Hickory; Emory Univ., 1923	1931	1932
Hambrick, Robt. T., Hickory; Univ. of Tulane, 1923; U.N.C.	1923	1924
Hunsucker, Chas. R., Hickory; N. C. Med. Coll., 1913	1913	1915
Keever, James W., Hickory	.....	1930
Klutz, A. F., Maiden; Jeff. Med. Coll., 1917	1917	1920
Lewis, J. S., Hickory; Med. Coll. of S. C., 1925	1927	1932
Long, Fred Y., Catawba; Balt. Med., 1898	1898	1898
Long, Glenn, Newton; N. C. Med. Coll., 1912	1912	1915
Menzies, H. C., Hickory, (Hon.); N. C. Med. Coll., 1894	1894	1899
Norman, J. S., Hickory; P. and S., Balt., 1909; U.N.C.	1911	1920
Nowell, S. C., Hickory; Univ. of Pa., 1921; U.N.C.	1922	1924
Price, K. A., Hickory; Univ. of Va., 1907	1907	1909

CHATHAM COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President:	.....	.....
Secretary:	.....	.....
Chapin, Wm. Burdette, Pittsboro; Univ. of N. C., 1909	1909	1910
Edwards, J. D., Siler City, (Hon.); Louisville Med. Coll., 1887	.....	1894
Gyles, Ronald C., Siler City; Jeff. Med. Coll., 1917	1922	1924

CHEROKEE COUNTY SOCIETY

President: N. B. Adams, Murphy; Tenn. Med. Coll., 1896; U.N.C.	1909	1909
Secretary: Edw. E. Adams, Murphy; Jeff. Med. Coll., 1923	1923	1924
Herbert, Fred L., Andrews; Tenn. Med. Coll., 1904	1912	1912
Hill, J. N., Murphy; Univ. of Louisville, 1909	1909	1909
Junkin, W. M., Andrews; Med. Coll. of Va., 1925	1933	1934
Petrie, Robt. Wm., Murphy, (Hon.); Univ. of Md., 1903	1903	1903
Webb, B. G., Andrews, (Hon.); Louisville Med. Coll., 1885	1885	1885
Young, G. McD., Postell; Lincoln Mem. Univ., 1916	1917	1918

CHOWAN-PERQUIMANS COUNTIES SOCIETY

President:	.....	.....
Secretary:	.....	.....
Brinn, T. P., Hertford; Univ. of Pa., 1923; U.N.C	1923	1927
Cox, Thomas A., Hertford; Univ. of Md., 1892; U.N.C	1907	1918
Davenport, C. A., Hertford; Univ. of Med., 1924; U.N.C	1924	1926
Newby, G. E., Hertford; Jeff. Med. Coll., 1900; U.N.C	1901	1916
Powell, Jesse A., Edenton; Coll. of P. and S., Balt, 1907	1908	1909
Whichard, M P., Edenton; Univ. of Md., 1910; U.N.C	1910	1918
Williams, L. P., Edenton; Bellevue Med. Coll., 1918	1919	1921

CLEVELAND COUNTY SOCIETY

President: W. J. Lackey, Fallston; Va. Med. Coll., 1928; U.N.C	1928	1929
Secretary: B. H. Kendall,, Shelby; Univ. of Md., 1929; U.N.C	1929	1931
Aydlette, Jos. P., Earl, (Hon.); Ky. Univ., 1901	1903	1903
Bridges, D. T., Lattimore; Emory Univ., 1926	1926	1927
Ellis, R. C., Shelby, (Hon.); Balt. Univ. Med. School, 1886	1889*	1891
Falls, Fred, Lawndale; Tulane, 1930	1930	1933
Gold, Ben, Shelby; Univ. of Md., 1920; U.N.C	1920	1922
Gold, T. B., Shelby; N. C. Med. Coll., 1911	1911	1915
Harbison, J. W., Shelby; Johns Hopkins, 1919; U.N.C	1919	1924
Houser, E. A., Shelby, (Hon.); Chattanooga Med. Coll., 1898; Balt. Univ., 1902	1902	1904
Lattimore, E. B., Shelby, (Hon.); Bellevue Med. Coll., 1897	1896	1904
Lee, Lawrence V., Lattimore, (Hon.); Emory Univ. School of Med., 1894	1897	1904
Matthews, B. B., Shelby; Med. Coll. of S. C	1927	1929
Moore, D. F., Shelby; Jeff. Med. Coll., 1925	1925	1927
Parker, S. F., Shelby; Med. Coll. of Va., 1929	1929	1931
Ramseur, W. L., Kings Mountain; Med. Coll. of S. C., 1926	1927	1929
Royster, S. S., Shelby, (Hon.); Tenn. Med. Coll., 1891	1896	1904
Schenk, Sam M., Shelby; Univ. of Pa., 1923; U.N.C	1923	1926
Thompson, H. C., Shelby; Tulane Univ., 1930; U.N.C	1931	1932
Wood, J. W., Boiling Springs, (Hon.); Louisville Med. Coll., 1892	1901*	1900

* Registered.

COLUMBUS COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: R. B. Whitaker, Whiteville; Univ. Coll. of Med., Richmond, 1912	1912	1913
Secretary: Floyd Johnson, Whiteville; Memphis Hosp. Med. Coll., 1903	1903	1904
Cox, G. S., Tabor; N. C. Med. Coll., 1911	1911	1914
Dawson, J. N., Lake Waccamaw; Med. Coll. of Va, 1932	1932	1934
Floyd, L. D., Fair Bluff; N. C. Med. Coll., 1911	1911	1912
Formyduval, T., Whiteville; Med. Coll. of Va., 1919	1920	1922
Moore, T. V., Delco; Balt. Med. Coll., 1901	1901	1911
Sadler, R. C., Whiteville; N. C. Med. Coll., 1912	1912	1915
Smith, W. F., Chidbourn; N. C. Med. Coll., 1904	1904	1905
Williams, William N., Tabor; Med. Coll. of Va., 1924	1924	1925

CRAVEN COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Ashford, Chas. Hall, New Bern; Johns Hopkins, 1927	.....	1931
Duffy, R. N., New Bern; Johns Hopkins, 1906	1907	1908
Duguid, Jos. W., Dover; N. C. Med. Coll., 1905; U.N.C.	1906	1912
Jones, R. Duval, New Bern; Univ. of Md., 1896; U.N.C.	1897	1897
Pollock, Raymond, New Bern; Jefferson Med. Coll., 1897; U.N.C.	1900	1900

CUMBERLAND COUNTY SOCIETY

President: D. S. Owen, Fayetteville; Univ. of Md., 1930; U.N.C.	1930	1933
Secretary: W. A. Pittman, Fayetteville; Temple Univ., 1932	.....	1934
Allgood, R. A., Fayetteville; Univ. of Md. and Coll. of P. and S., Balt., 1912	1915	1917
Ashcraft, J. E., Fayetteville, (Hon.); Univ. of N. Y., 1887	1887	1890
Averitt, K. G., Cedar Creek, (Hon.); Balt. Med. Coll., 1893	1893	1902
Bullock, Thomas C., Autryville, (Hon.); P. and S., Balt., 1885	1885	1886
Currie, D. S., Parkton; N. C. Med. Coll., 1906	1906	1907
Foster, M. T., Fayetteville; Emory Univ., 1927	1927	1930
Gainey, John W., Fayetteville; Jeff. Med. Coll., 1917; U.N.C.	1917	1921
Highsmith, J. D., Fayetteville; Jeff. Med. Coll., 1918	1918	1920
Highsmith, J F., Fayetteville, (Hon.); Jeff. Med. Coll., 1889	1889	1893
Highsmith, J. F., Jr., Fayetteville; Univ. of Pa., 1927	1927	1929
Highsmith, Seavy, Fayetteville, (Hon.); Univ. Coll. of Med., Richmond, 1901	1901	1902
Highsmith, W. C., Fayetteville; Univ. of Cincinnati, 1931; U.N.C.	1930	1932
Jordan, Wm. S., Fayetteville; Univ. of N. C., 1906	1906	1907
Kirksey, W. A., Hope Mills; Washington Univ., 1921; U.N.C.	1921	1924
Lilly, James M., Fayetteville, (Hon.); Univ. Coll. of Med., Richmond, 1903; U.N.C.	1903	1904
McFayden, O. L., Fayetteville; N. C. Med. Coll., 1912	1912	1912
McKay, W. P., Fayetteville; Tulane Univ., 1916; U.N.C.	1916	1921
McLeod, J. H., Fayetteville	.....	.....
Olive, P. W., Fayetteville; P. and S., Balt., 1907	1907	1909
Parker, W. T., Fayetteville; Med. Coll. of S. C., 1928	1931	1933
Pittman, R. L., Fayetteville; Jeff. Med. Coll., 1910; U.N.C.	1910	1912
Rainey, W. T., Fayetteville; Univ. Coll. of Med., Richmond, 1913	1913	1916
Robertson, J. N., Fayetteville; Med. Coll. of Va., 1923	1923	1924
Shaw, J. A., Fayetteville; Univ. Pa., 1923; U.N.C.	1923	1926
Verdery, W. C., Fayetteville; Univ. of Ga., 1915	1920	1921

DAVIDSON COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: R. K. Farrington, Thomasville; Univ. Cin., 1925; U.N.C.	1925	1927
Secretary: C. R. Sharpe, Lexington; Jeff. Med. Coll., 1914	1914	1917
Alexander, G. T., Thomasville; Emory Univ., 1922	1933	1934
Andrews, John M., Lexington; N. Y. Univ. and Bellevue Hosp. Med. Coll., 1932; U.N.C.	1932	1934
Cathell, E. J., Lexington; Emory Univ., 1930	1930	1932
Clyatt, Claude Eugene, Denton; Univ. of Ga., 1911	1923	1924
Gambrell, Grover C., Lexington; Univ. of Ga., 1912	1923	1924
Hunt, W. Bryce, Lexington; Univ. of Md., 1923	1923	1924
Jennings, R. G., Thomasville; N. C. Med. Coll., 1913	1913	1920
Lancaster, F. J., Lexington; Jeff. Med. Coll., 1922	1922	1924
Leonard, J. C., Jr., Lexington; Jeff., 1928	1928	1931
Mock, Frank Lowe, Lexington, Rt. 3; N. C. Med. Coll., 1908	1908	1911
Phillips, C. H., Thomasville; Balt. UUniv. School of Med., 1892	1893	1911
Redwine, J. Dan, Lexington; Emory Univ., 1931	1931	1934
Smith, J. A., Lexington; N. C. Med. Coll., 1915	1915	1917
Smith, William Gordon, Thomasville; Tulane Univ., 1927; U.N.C.	1927	1928
Terry, J. R., Lexington; Univ. of Louisville, 1911	1912	1912
Vestal, Willis J., Lexington, (Hon.); P. and S., Balt., 1883	1889*	1893
Yokeley, R. V., Thomasville; N. C. Med. Coll., 1911	1911	1912
Zimmerman, Robert U., Welcome; N. C. Med. Coll., 1901	1901	1904

DAVIE COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Byerly, A. B., Cooleemee, (Hon.); Univ. College of Med., Richmond, 1896; U.N.C.	1896	1904
Rodwell, Jno. W., Mocksville, (Hon.); P. and S., Balt., 1895	1895	1896

DUPLIN COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Quinn, Robert F., Magnolia; N. C. Med. Coll., 1912	1913	1916
Straughan, J. W., Warsaw; Med. Coll. of Va., 1924	1924	1925

DURHAM-ORANGE COUNTIES SOCIETY

President: B. U. Brooks, Durham; Univ. of Md., 1905; U.N.C.	1905	1907
Secretary: Clarence E. Gardner, Jr., Durham; Johns Hopkins, 1928	1932	1932
Alyea, Edwin P., Durham; Johns Hopkins Med. Sch., 1923	1930	1930
Anderson, W. B., Durham; Johns Hopkins, 1924	1927	1927
Berryhill, Walter Reece, Chapel Hill; Harvard Med. Sch., 1927; U.N.C.	1928	1934
Bitting, Numa D., Durham; Jeff. Med. Coll., 1907; U.N.C.	1907	1909
Booker, Lyle S., Durham; Va. Univ. Med. Coll., 1908	1910	1911
Boone, W. H., Durham; N. C. Med. Coll., 1902	1902	1910
Boone, W. W., Durham; Jeff. Med. Coll., 1923; U.N.C.	1923	1925
Bowles, Francis N., Durham; Med. Coll. of Va., 1924	1924	1926
Bowling, Jackson Murrell, Durham; Med. Coll. of Va., 1931	1931	1934
Brinkley, H. M., Durham; Jeff. Med. Coll., 1919; U.N.C.	1919	1923
Bullitt, J. B., Chapel Hill; Univ. of Va., 1897	1914	1915
Byrnes, Thomas H., Durham; Med. Coll. of S. C., 1926	1932	1932

* Registered.

Name and Address	Licensed	Joined State Society
Campbell, A. S., Durham; Chicago Coll. Med. and Surg., 1917	1923	1924
Carter, Bayard, Durham; Johns Hoppkins, 1925	1925	1931
Coppridge, W. M., Durham; Jeff. Med. Coll., 1918; U.N.C.	1919	1920
Crispell, R. S., Durham; Cornell Univ., 1920	1933	1934
Darden, O. B., Richmond, Va., Med. Coll. of Va., 1918	1920	1920
Davison, Wilburt C., Durham; Johns Hopkins, 1917	1927	1927
Eagle, Watt W., Durham; Johns Hopkins, 1925	1929	1930
Fassett, Burton W., Durham; Balt. Med. Coll., 1898	1899	1909
Felts, Robert L., Durham; Univ. of Md., 1898	1899	1909
Fields, Leonard E., Chapel Hill; Univ. of Pa., 1929; U.N.C.	1929	1931
Forrest, D. E., Hillsboro; Univ. of Md., 1930; U.N.C.	1930	1933
Goudge, Mabel E., West Durham; Ohio State Univ., 1922	1925	1927
Hamblen, E. C., Durham; Univ. of Va., 1928	1931	1931
Hanes, F. M., Durham; Johns Hopkins, 1908	1916	1917
Hansen-Pruss, O. C. E., Durham; Johns Hopkins, 1924	1930	1931
Hardee, W. P., Durham; Jeff. Med. Coll., 1912; U.N.C.	1912	1924
Hart, Deryl, Durham; Johns Hopkins, 1921	1929	1930
Hayes, R. B., Hillsboro; Univ. of Md., 1906	1910	1917
Haywood, C. L., Jr., Durham; Harvard, 1927	1929	1930
Hicks, Calvin S., Durham, (Hon.); Univ. of Md., 1904	1904	1904
Holloway, Joseph C., Durham; Tulane Univ., 1927; U.N.C.	1927	1929
Holloway, Robert Lee, W. Durham, (Hon.); Med. Coll. of Va., 1893	1893	1901
Hooker, J. S., Chapel Hill; Emory Univ., 1923	1923	1924
Johnson, N. M., Durham, (Hon.); Wash. Univ. Sch. of Med., 1877	1889	1879
Johnston, Christopher, Durham; Johns Hopkins, 1926	1930	1930
Jones, Robt. Randolph, Jr., Durham; Johns Hopkins, 1928	.....	1933
Kerns, T. C., Durham; Univ. of Pa., 1911; U.N.C.	1911	1912
Lloyd, B. B., Carrboro; Univ. of N. C., 1909	1909	1914
London, A H., Durham; Univ. of Pa., 1927; U.N.C.	1927	1930
MacNider, Wm. deB., Chapel Hill; Univ. of N. C., 1903	1903	1903
McBryde, Angus M., Durham; Univ. of Pa., 1928	1931	1932
McCutcheon, W. B., Durham; Med. Coll. of Va., 1921	1921	1924
McPherson, S. D., Durham, (Hon.); Univ. of Md., 1903	1903	1912
Mangum, C. S., Chapel Hill; Jeff. Med. Coll., 1894; U.N.C.	1896	1898
Manning, I. H., Chapel Hill, (Hon.); Long Island Coll. Hosp, N. Y., 1897; U.N.C.	1899	1901
Markham, Blackwell, Durham; Harvard Med. Coll., 1922; U.N.C.	1922	1925
Nichols, R. E., Jr., Durham; Univ. of Pa., 1930	1930	1932
Nichols, Rhodes E., Durham, (Hon.); Rt. 8; Va. Med. Coll., Richmond, 1890; U.N.C.	1890	1904
Perry, D. R., Durham; Jeff. Med. Coll., 1919	1919	1922
Persons, Elbert Lapsley, Durham; Harvard Med. Sch., 1927	1931	1931
Powell, Albert H., Durham; Univ. of Ga., 1924	1925	1925
Reeves, Robert J., Durham; Baylor Univ., 1924	1930	1930
Riggsbee, A. E., Durham; Univ. of N. C., 1909	1909	1911
Roberson, Foy, Durham; Jeff. Med. Coll., 1909; U.N.C.	1909	1912
Roberts, Bryan N., Hillsboro; Univ. of Md., 1925; U.N.C.	1925	1926
Roberts, B. W., Durham; Univ. of Md., 1924; U.N.C.	1924	1927
Robertson, E. M., Durham; Tulane Univ., 1912; U.N.C.	1912	1913
Ross, George H., Durham, (Hon.); Univ. Tenn., 1899	1899	1904
Ross, Robert A., Durham; Univ. of Pa., 1922; U.N.C.	1922	1925
Ruffin, J. M., Durham; Univ. Va., 1926	1930	1931
Schular, J. E., East Durham; Med. Coll. of Va., 1914	1920	1922
Shands, Alfred Rives, Jr., Durham; Univ. of Va., 1922	1929	1930

Name and Address	Licensed	Joined State Society
Smith, Annie T., Durham; Univ. of Ill., 1923; U.N.C.	1925	1926
Smith, D. T., Durham; Johns Hopkins, 1922	.....	1931
Speed, J. A., Durham, Jeff. Med. Coll., 1914	1914	1916
Spikes, N. O., Durham; Jeff. Med. Coll., 1924; U.N.C.	1924	1927
Stanford, Lois Foote, Durham; Univ. of Pa., 1921	1923	1924
Stanford, W. R., Durham; Univ. of Pa., 1919; U.N.C.	1919	1923
Strowd, W. A., Durham; Univ. of N. C., 1909	1909	1926
Sweaney, H. M., Durham; Univ. of Pa., 1919; U.N.C.	1919	1920
Watkins, G. T., Durham; Jeff. Med. Coll., 1915	1915	1917
Watkins, W. M., Durham; Jeff. Med. Coll., 1923	1923	1925

EDGECOMBE-NASH COUNTIES SOCIETY

President: Ivan Proctor Battle, Rocky Mount; Jeff. Med. Coll., 1904; U.N.C.	1905	1914
Secretary: Roy Norton, Rocky Mount; Vanderbilt, 1928; U.N.C.	1928	1932
Anderson, R. S., Rocky Mount; Univ. of Md., 1924; U.N.C.	1924	1932
Bailey, C. W., Rocky Mount	.....	1930
Baker, Julian Meredith, Tarboro, (Hon.); Univ. of Md., 1879	1879	1879
Bass, Spencer P., Tarboro; Univ. of Va., 1906	1907	1909
Battle, N. P., Rocky Mount; Univ. of Pa., 1926; U.N.C.	1930	1931
Boice, E. S., Rocky Mount; Univ. of Pa., 1909	1914	1915
Brantley, Hassell, Spring Hope; Jeff. Med. Coll., 1888	1888	1901
Brantley, J. C., Spring Hope; Jeff. Med. Coll., 1916	1916	1922
Coppedge, T. O., Nashville; Coll. of Phys and Surg., Balt., 1908; U.N.C.	1909	1917
Cutchin, J. Henry, Whitakers; Univ. Coll. of Med., Rich., 1911; U.N.C.	1911	1915
Daughtridge, A. L., Rocky Mount; Univ. of Md., 1924; U.N.C.	1924	1924
Deans, A. W., Battleboro; Med. Coll. of Va., 1915	1915	1917
DeLoatch, M. W., Tarboro; Med. Coll. Va., 1928	1928	1930
Dixon, W. H., Rocky Mount; Jefferson Med. Coll., 1919; U.N.C.	1919	1922
Fleming, M. I., Rocky Mount; Jeff. Med. Coll., 1904; U.N.C.	1906	1919
Green, Wm. W., Tarboro; Univ. N. C, 1908	1908	1910
Hines, E. R., Rocky Mount; Med. Coll. of S. C., 1916	1916	1917
Hooks, Bordon, Tarboro; U.N.C.	.....	.....
House, W. O., Tarboro; Grad., 1927	1927	1930
Jones, W. S., Nashville; 1927	1927	1927
Kinlaw, Wm. Bernard, Rocky Mount; Univ. of Pa., 1920	1920	1923
Knowles, D. L., Rocky Mount; Univ. of Pa., 1918; U.N.C.	1918	1920
Kornegay, Lemuel W., Rocky Mount; N. C. Med. Coll., 1906	1906	1906
Lane, John L, Rocky Mount; N. C. Med. Coll., 1906	1906	1914
Large, H. Lee, Rocky Mount; Med. Coll. Va., 1917	1918	1918
Looney, J. J. W., Rocky Mount; Univ. of Va., 1916	1916	1920
Martin, J. H., Red Oaks; Univ. of Nashville, 1903	1904	1916
Noell, R. H., Rocky Mount; Univ. of Md., 1916	1916	1920
Norfleet, A. C., Tarboro; Univ. of Pa., 1924; U.N.C.	1925	1927
Pearson, H. O., Pinetops; Med. Coll. of Va., 1926	1927	1928
Perry, E. M., Rocky Mount; P. & S., Balt., 1907	1907	1920
Powell, Herman S., Bailey; Med. Coll. of Va., 1932	1932	1933
Raby, J. G., Tarboro; Univ. Coll. of Med., 1911	1911	1912
Smith, C. T., Rocky Mount; Univ. of Pa., 1918; U.N.C.	1918	1920
Speight, J. A., Rocky Mount; Univ. of La., 1914; U.N.C.	1915	1916
Staley, S. Walter, Rocky Mount; Med. Coll. of S. C., 1901; U.N.C.	1901	1914
Stone, M. L., Rocky Mount; Univ. of Pa., 1924; U.N.C.	1928	1929

Name and Address	Licensed	Joined State Society
Sykes, J. V., Rocky Mount; Univ. Pa., 1929; U.N.C.	1929	1930
Thorp, A. T., Rocky Mount; Univ. of Pa., 1921; U.N.C.	1921	1923
Vann, J. R., Spring Hope; Jeff. Med. Coll., 1917	1917	1919
Wheless, W. P., Spring Hope; U.N.C.	.....	1934
Willis, B. C., Rocky Mount; Med. Coll. of Va., 1909	1916	1916
Winstead, J. A., Rocky Mount; N. C. Med. Coll., 1914	1916	1916
Wooten, Amos Monroe, Pinetops; Univ. of N. C., 1910	1910	1911

FORSYTH COUNTY SOCIETY

President: R. A. Moore, Winston-Salem; N. C. Med. Coll., 1911	1911	1917
Secretary: W. L. Kirby, Winston-Salem; Vanderbilt, 1925	1926	1930
Ader, O. L., Walkertown; Univ. of Pa., 1925	1925	1927
Avery, E. S., Winston-Salem; Univ. of Pa., 1928; U.N.C.	1928	1930
Belton, J. F., Winston-Salem; Univ. of Pa., 1914	1914	1916
Benbow, Edgar V., Winston-Salem; Jeff. Med. Coll., 1925	1925	1927
Benbow, J. T., Winston-Salem; N. C. Med. Coll., 1910; U.N.C.	1910	1920
Bowers, M. A., Winston-Salem; Tulane Univ., 1911; U.N.C.	1911	1914
Brown, F. B., Winston-Salem; Univ. of Ga., 1926	1926	1930
Butler, Leroy J., Winston-Salem; Med. Coll. of Va., 1915	1920	1921
Carlton, Romolus L., Winston-Salem; Univ. of Md., 1906	1906	1908
Casstevens, J. C., Clemmons; Va. Med. Coll., 1926	1926	1927
Combs, Fieldings, Winston-Salem; Med. Coll. of Va., 1923	1931	1932
Cook, J. L., Winston-Salem; Univ. of Pa., 1925; U.N.C.	1925	1927
Cooke, G. C., Winston-Salem; Univ. of Md., 1919; U.N.C.	1919	1920
Couch, V. F., Winston-Salem; P. and S., New York, 1911	1911	1919
Craig, S. D., Winston-Salem; Tulane Univ., 1908	1911	1912
Dalton, Wm. N., Winston-Salem; N. C. Med. Coll., 1904	1904	1905
Davis, Thos. W., Winston-Salem, (Hon.); S. C. Med. Coll, 1898; U.N.C.	1899	1899
DeLaney, C. O., Winston-Salem; Jefferson, 1919; U.N.C.	1919	1926
Dodge, Eva F., Winston-Salem; Med. Coll. Univ of Md., 1925	1932	1932
Drummond, C. S., Winston-Salem	.....	1933
Fearington, J. C. P., Winston-Salem; Rush Med. Coll., 1930; U.N.C.	1933	1934
Garvey, Fred K., Winston-Salem; Univ. of Cincinnati, 1925; U.N.C.	1925	1933
Garvey, R. R., Winston-Salem; N. C. Med. Coll., 1915	1915	1919
Gray, Eugene Price, Winston-Salem; Johns Hopkins, 1906	1907	1909
Grimes, W. L., Winston-Salem; Johns Hopkins, 1910	1910	1915
Hart, O. J., Winston-Salem; Med. Coll. of S. C., 1925	1930	1932
Hege, J. Roy, Winston-Salem; Univ. of Md., 1916; U.N.C.	1916	1917
Holleman, Charles, Winston-Salem; Jeff., 1932	1932	1933
Holmes, George W., Winston-Salem; Med. Coll. Va., 1931	1931	1933
Hurdle, S. W., Winston-Salem; Jeff. Med. Coll., 1914	1914	1916
Johnson, Paul W., Winston-Salem	.....	1933
Johnson, Wingate M., Winston-Salem; Jeff. Med. Coll., 1908	1908	1911
Jones, Beverly N., Winston-Salem; Med. Coll. of Va., 1915	1915	1921
Jones, R. Rives, Winston-Salem; Med. Coll. of Va., 1923	1923	1925
Keiger, O. R., Winston-Salem; Univ. Coll. of Med., Richmond, 1911; U.N.C.	1911	1914
Kerr, Jas. Edwin, Winston-Salem, (Hon.): Univ. of Md., 1897	1898	1898
Lassiter, V. C., Winston-Salem; Emory Univ., 1925	1928	1928
Linville, Aaron Y., Winston-Salem, (Hon.); Univ. of N. Y., 1889	1889	1896
Lockett, Everett A., Winston-Salem, (Hon.); Univ. of Pa., 1902; U.N.C.	1904	1904
Long, Vann McKee, Winston-Salem; N. C. Med. Coll., 1906	1906	1911

Name and Address	Licensed	Joined State Society
McBride, W. P. L., Winston-Salem; Md. Med. Coll., 1926	1927	1934
McCants, C. H., Winston-Salem; Med. Coll. of S. C., 1925	1929	1931
McDowell, W. K., Winston-Salem; Jeff. Med. Coll., 1931	1931	1934
Munt, H. F., Winston-Salem; Med. Coll. Va., 1911	1914	1916
Paddison, Jno. Robt., Kernersville; Univ. of Md., 1902; U.N.C.	1902	1913
Pepper, John Kerr, Winston-Salem; P. and S., Balt., 1907	1908	1908
Perkins, J. R., Winston-Salem; Va. Med. Coll., 1904	1910	1917
Pfohl, Samuel F., Winston-Salem, (Hon.); Univ. of Pa., 1894	1898	1898
Pool, B. B., Winston-Salem; Jeff. Med. Coll., 1923	1923	1925
Poole, C. Glenn, Winston-Salem; Tulane, 1924	1924	1927
Rankin, S. W., Winston-Salem; Jeff. Med. Coll., 1912	1912	1914
Redfern, T. C., Winston-Salem; L. I. Med. Coll. Hosp., 1916	1921	1921
Richardson, W. P., Rockingham; Med. Coll. of Va., 1928	1928	1932
Rousseau, J. P., Winston-Salem; Univ. of Md., 1918; U.N.C.	1920	1920
Schallert, P. O., Winston-Salem; Univ. of Ill. Med. Dept., 1904	1911	1912
Simmons, R. R., Winston-Salem; Va. Med. Coll., 1917	1923	1924
Slate, John S., Winston-Salem; Univ. Coll. Med., Richmond, Va., 1900	1899	1920
Spainhour, Ellis H., Winston-Salem, (Hon.); Balt. Med. Coll., 1898	1898	1898
Speas, D. C., Rt. 2, Winston-Salem; Univ. of Md., 1911	1913	1924
Speas, W. P., Winston-Salem; Med. Coll. of Va., 1912	1911	1912
Spencer, Wm. O., Winston-Salem, (Hon.); Jeff. Med. Coll., 1891	1891	1894
Spicer; Richard W., Winston-Salem; N. C. Med. Coll., 1910; Univ. of Pa., 1911	1910	1916
Sprunt, W. H., Jr., Winston-Salem; Univ. of Pa., 1918	1918	1925
Street, C. A., Winston-Salem; Harvard, 1918	1918	1925
Strickland, Edward F., Winston-Salem, (Hon.); Univ. of New York, 1887; U.N.C.	1887	1893
Thompson, Edg. S., Winston-Salem; Univ. of N. Y., 1919	1919	1921
Tuttle, Reuben G., Winston-Salem; N. C. Med. Coll., 1909	1909	1913
Valk, A. deT., Winston-Salem; Johns Hopkins, 1910	1913	1914
Vestal, T. F., Winston-Salem; U.N.C.	.....	1932
Wall, R. L., Winston-Salem; Jeff. Med. Coll., 1912	1912	1914
Whittington, Jas. B., Winston-Salem; N. C. Med. Coll., 1911	1911	1913
Wright, O. E., Winston-Salem; Emory Univ., 1924	1924	1928
Wyatt, Wortham, Winston-Salem; Univ. of Pa., 1913; U.N.C.	1913	1916
Wylie, W. deK., Winston-Salem; Univ. of Va., 1924	1926	1928
Yoder, Paul A., Winston-Salem; Univ. Pa., 1923; U.N.C.	1923	1925

FRANKLIN COUNTY SOCIETY

President:	.....	.....
Secretary: R. F. Yarborough, Louisburg, (Hon.); Geo. Wash. Univ., 1898	1899	1899
Burt, S. P., Louisburg, (Hon.); P. and S., Balt., 1896	1896	1904
Cheves, W. G., Bunn; Jeff. Med. Coll., 1925	1925	1933
Fulghum, James E., Louisburg; Med. Coll. of Va., 1931	1931	1934
Johnson, Harry H., Louisburg; Coll. of P. and S., Baltimore, 1915	1919	1919
Perry, A. H., Wood; Univ. of Md. and P. and S., Balt., 1924	1924	1925
Perry, H. G., Louisburg; P. and S., Balt., 1915	1915	1916
Timberlake, C. V., Youngsville; Jefferson Med. Coll., 1915	1915	1922
Timberlake, Richard E., Youngsville; Jeff. Med. Coll., 1908	1908	1910

GASTON COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: R. B. Groves, Lowell; Med. Coll. of Va., 1924	1924	1924
Secretary: H. F. Glenn, Jr., Gastonia; Emory Univ., 1932	1932	1934
Allen, M. H., Cramerton; Emory Univ., 1929	1930	1931
Anders, McT. G., Gastonia, (Hon.); Md. Med. Coll., 1901	1902	1902
Anthony, J. E., Kings Mountain; Univ. of Tenn., 1911	1911	1911
Anthony, W. A., Gastonia; Med. Coll. of Va., 1929	1929	1932
Belk, Geo. W., Gastonia; Atlanta School of Med., 1913	1918	1924
Blair, J. L., Gastonia; Atlanta Med. Coll., 1915	1920	1921
Campbell, J. W., Gastonia; P. and S., Balt., 1893	1919	1920
Eddleman, Hall M., Gastonia, (Hon.); College Phys. and Surg., Balt., 1886	1889	1904
Garrison, D. A., Gastonia, (Hon.); Louisville Med. Coll., 1896	1896	1900
Houser, Forest M., Cherryville; Univ. of Pa., 1928; U.N.C.	1929	1930
Jones, W. M., Gastonia	.....	.....
Lyday, C. E., Gastonia; Atlanta Sch. Med., 1910	1910	1920
McAdams, C. R., Belmont; N. C. Med. Coll., 1912	1912	1916
McChesney, W. W., Gastonia; Med. Coll. Va., 1915	1926	1927
McDowell, R. H., Belmont; Univ. of Md., 1929; U.N.C.	1930	1931
Miller, R. C., Gastonia; N. C. Med. Coll., 1909; U.N.C.	1918	1919
Moore, B. D., Mount Holly; Med. Coll. of Va., 1915	1915	1921
Parks, W. B., Gastonia; Univ. of Md., 1924	1924	1927
Patrick, Geo. R., Jr., Bessemer City; Univ. of Md., 1916	1916	1920
Pressly, J. M., Belmont; N. C. Med. Coll., 1915	1915	1920
Pugh, Charles H., Gastonia; N. C. Med. Coll., 1910	1910	1913
Quickel, Thos. C., Gastonia, (Hon.); Tulane Univ., 1900; U.N.C.	1899	1904
Rhyne, Robt. E., Gastonia; N. C. Med. Coll., 1907	1907	1908
Roberts, W. M., Gastonia; Tufts, 1925	1928	1929
Swann, Jos. F., Gastonia, (Hon.); P. & S., Balt., 1896	1896	1904
Wilkins, S. A., Dallas, (Hon.); Univ. of Ky., 1902	1903	1903

GATES COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Blanchard, T W., Hobsville; Med. Coll. of Va., 1911	1911	1919
Carter, Thomas L., Gatesville; Med. Coll. of Va., 1917	1917	1928

GRANVILLE COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Bradsher, J. S., Stovall; Univ. of Va., 1925	1925	1927
Carrington, S. M., Oxford; Rush Med. Coll., 1931; U.N.C.	1931	1934
Daniel, N. C., Oxford; N. C. Med. Coll., 1895	1895	1902
Hays, B. K., Oxford, (Hon.); Univ. Coll. of Med., Va., 1894	1894	1897
Morris, Joseph A., Oxford, (Hon.); Vanderbilt Univ., 1890	1893	1899
Noblin, Roy L., Oxford; Med. Coll. Va., 1924	1924	1924
Taylor, R. W., Oxford; Tulane Univ., 1926	1926	1928
Taylor, Wm. L., Oxford, (Hon.); Univ. of Va., 1900	1901	1901
Thomas, Wm. N., Oxford; Va. Med. Coll., 1911	1911	1914
Thompson, Joseph W., Creedmoor; Ky. Univ. Louisville, 1904	1907	1912

GREENE COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: W. B. Murphy, Snow Hill; Univ. Coll. of Med., Va., 1903	1903	1905
Secretary: F. W. Carroll, Hookerton; Med. Coll. of Va., 1925	1926	1927
Dawson, W. E., Hookerton; Jefferson, 1920	1920	1922
Harper, J. H., Snow Hill; Jefferson, 1905; U.N.C.	1906	1907
Marlowe, W. A., Walstonburg; Jeff. Med. Coll., 1919; U.N.C.	1919	1921
Whittington, Wm. W., Snow Hill, (Hon.); Louisville Med. Coll., 1895	1895	1902

GUILFORD COUNTY SOCIETY

President: I. Thurman Mann, High Point; Jeff. Med. Coll., 1912; U.N.C.	1912	1915
Secretary: C. W. Jennings, Greensboro; Med. Coll. of Va., 1916	1916	1926
Ashworth, W. C., Greensboro, (Hon.); P. and S., Balt., 1892	1892	1894
Aydlett, H. T., Greensboro; Univ. of Va., 1894	1895	1907
Banner, A. C., Greensboro; Jeff. Med. Coll., 1920; U.N.C.	1920	1922
Banner, Chas. W., Greensboro, (Hon.); Univ. of Md., 1899	1899	1901
Battle, John T. J., Greensboro, (Hon.); P. and S., Balt., 1884	1884	1890
Berry, John, Greensboro; Jeff. Med. Coll., 1908; U.N.C.	1908	1920
Bonner, M. D., Jamestown; Univ. of Md., 1930; U.N.C.	1930	1934
Bonner, O. B., High Point; Univ. of Md., 1917; U.N.C.	1920	1921
Bowman, H. P., Greensboro; Univ. of Tenn., 1894	1894	1905
Brockman, Harry L., High Point; Univ. of Pa., 1917; U.N.C.	1917	1921
Buie, R. M., Greensboro; Jeff. Med. Coll., 1914	1914	1920
Burrus, John T., High Point, (Hon.); Univ. of Md., 1900; Grant Univ., 1902; Davidson College, 1898	1898	1898
Cater, R. L., Greensboro; Emory Univ., 1916	1932	1932
Clary, Wm. T., Greensboro; Univ. of Penna., 1928; U.N.C.	1928	1934
Coe, Samuel S., High Point; Univ. Coll. of Med., Va., 1911	1912	1913
Cook, H. L., Greensboro; Jeff. Med. Coll., 1918; U.N.C.	1918	1920
Cole, Walter F., Greensboro; Johns Hopkins, 1909	1909	1910
Collings, Ruth M., Greensboro; Univ. of Pa., 1923	1926	1927
Cozart, S. R., Greensboro; Med. Coll. of Va., 1923	1923	1925
Davis, P. B., High Point; Jefferson, 1926; U.N.C.	1926	1929
Davis, R. B., Greensboro; Med. Coll. of Va., Richmond, 1915	1916	1917
Dees, Ralph Erastus, Greensboro; Univ. of Md., 1906	1908	1909
Dees, Rigdon O., Greensboro; Univ. of Md., 1906	1907	1908
Dick, Julius Vance, Gibsonville; Univ. of N. C., 1907	1907	1908
Durham, C. W., Greensboro; Geo. Wash. Univ., 1927	1927	1929
Edwards, V. E., Greensboro; Univ. of Md., 1913	1913	1913
Flagge, Philip W., High Point; Wash. Univ., St. Louis, 1902	1905	1919
Fortune, Alex. F., Greensboro, (Hon.); Univ. Coll. of Med., Va., 1900; U.N.C.	1900	1904
Geddie, K. B., High Point; Jeff. Med. Coll., 1921; U.N.C.	1921	1923
Gilmore, C. M., Greensboro; Med. Coll. of Va., 1925	1925	1926
Glascock, Joy H., Greensboro; Women's Med. Coll. of Balt., 1896	1896	1907
Gove, Anna M., Greensboro, (Hon.); Women's Med. Coll. of New York, Infirmary, 1892	1894	1896
Grayson, C. S., High Point; Geo. Wash. Univ., 1906	1907	1908
Groome, J. G., High Point; Univ. of Ohio, 1924; U.N.C.	1924	1925
Harden, R. N., Greensboro; Univ. of Pa., 1922; U.N.C.	1922	1924
Harrison, Edmund, Greensboro, (Hon.); Univ. Coll. of Med., 1896	1900	1900
Harrison, Edward T., High Point; Johns Hopkins Medical School, 1926	1926	1928

Name and Address	Licensed	Joined State Society
Harvey, W. W., Greensboro; Emory Univ., 1920	1922	1923
Hiatt, Houston B., High Point; Univ. of Md., 1907; U.N.C.	1907	1910
Holt, D. W., Greensboro; Jeff. Med. Coll., 1918	1918	1920
Hudson, C. C., Greensboro; Univ. Coll. of Med. of Va., 1910	1918	1924
Jackson, Walter Leo, High Point; N. C. Med. Coll., 1911	1911	1913
Jones, Wm. M., Greensboro, (Hon.); Univ. of Md., 1903	1903	1903
Julian, Charles A., Greensboro, (Hon.); Louisville Med. Coll., 1888	1891	1892
Keiger, James A., Greensboro; Univ. of Va., 1916	1916	1919
Keith, Marion Y., Greensboro; Univ. of Md., 1923	1923	1927
Knight, Wm. P., Greensboro, (Hon.); Balt. Med. Coll., 1898	1898	1898
Le Bauer, S. F., Greensboro; Univ. of Va., 1929	1930	1932
Leiby, G. M., Gibsonville; U.N.C.	.....	.....
Long, E. F., High Point; Med. Coll. of Va., 1909	1909	1912
Lyday, R. O., Greensboro; Univ. of Pa., 1920; U.N.C.	1920	1927
Lyon, B. R., Greensboro; Columbia Univ., 1915	1920	1920
McAnnally, Wm. J., High Point, (Hon.); Balt. Med. Coll., 1897	1896	1899
McCain, Wm. R., High Point, (Hon.); Univ. of Md., 1897; U.N.C.	1898	1898
McGee, J. M., Greensboro; Univ. of Pa., 1925; U.N.C.	1927	1927
Maness, A. K., Greensboro; Jeff. Med. Coll., 1928; U.N.C.	1928	1929
Meadows, W. J., Greensboro, (Hon.); Med. Coll. of Ala., 1894	1899	1904
Moseley, Charles W., Greensboro, (Hon.); Balt. Med. Coll., 1893	1893	1896
Norment, W. B., Greensboro; Jeff. Med., 1922; U.N.C.	1922	1932
Ogburn, H. H., Greensboro; Johns Hopkins Univ., 1913; U.N.C.	1913	1914
Ownbey, Arthur D., Greensboro; Med. Coll. Va., 1920	1925	1927
Parker, H. R., Greensboro; Univ. of Syracuse, 1923	1924	1925
Pate, F. J., Greensboro; Univ. of Md., and P. and S., Balt., 1908	1908	1915
Patterson, Fred M., Greensboro; Univ. of Pa., 1924; U.N.C.	1924	1928
Post, J. J., Greensboro; Columbia Univ., 1919	1925	1926
Ravenel, S. F., Greensboro; Johns Hopkins, 1923	1923	1926
Reaves, W. P., Greensboro; Univ. of the South, 1903	1905	1907
Reitzel, Claude E., High Point, (Hon.); P. and S., Atlanta, 1902	1902	1902
Rhudy, Booker, E., Greensboro; Med. Coll. Va., 1916	1926	1927
Saunders, S. Stewart, High Point; Harvard Med. School, 1924	1926	1927
Schoonover, R. A., Greensboro; Baltimore Med. Coll., 1905	1912	1912
Sharpe, F. A., Greensboro; Univ. of Pa., 1916	1916	1920
Shelburne, P. A., Greensboro, Univ. of Va., 1927	1928	1928
Sikes, Henry, Greensboro; Jeff. Med. Coll., 1931	1933	1934
Simmons, L. L., Greensboro; Univ. of Tenn., 1893; Vanderbilt Univ., 1899	1918	1919
Slate, M. L., High Point; Univ. of Md., 1931	1931	1934
Slate, J. W., High Point; Univ. Coll. of Med., Rich., 1900	1899	1925
Smith, Alick T., Greensboro; Med. Coll. of Va., 1908	.....	1913
Spruill, Jos. L., Jamestown; Univ. of Md., 1895	1895	1907
Stanton, D. A., High Point, (Hon.); Vanderbilt Univ., 1887	1887	1891
Starr, H. F., Greensboro; Jeff. Med. Coll., 1916; U.N.C.	1916	1917
Stirewalt, Neal S., High Point; Univ. of Md., 1909	1915	1927
Sumner, E. A., High Point; Baylor Univ., Tex., 1925	1926	1927
Tankersley, J. W., Greensboro; Jeff. Med. Coll., 1906; U.N.C.	1906	1907
Taylor, F. R., High Point; Univ. of Pa., 1913	1913	1915
Taylor, James N., Greensboro; Med. Coll. of Va., 1901	1902	1905
Taylor, James T., Greensboro; Univ. of Md., Coll. of P. & S., Balt., 1908	1908	1910
Taylor, S. R., Greensboro; Univ. of Pa., 1921; U.N.C.	1921	1924
Taylor, Wesley, Greensboro; Ann Harbor, 1899	1925	1926

Name and Address	Licensed	Joined State Society
Thompson, C. D., High Point, (Hon.); Univ. of Tenn., 1901	1901	1904
Turner, J. P., Greensboro, (Hon.); Univ. of M.d, 1896	1897	1904
Tice, W. T., High Point; Jeff. Med. Coll., 1927; U.N.C.	1927	1929
Whittington. Claude, Greensboro; Univ. of Md., 1927	1927	1929
Wilkerson, C. E., Greensboro; Univ. of Nashville, 1907	1908	1909
Williams, John D., Guilford Station, (Hon.); Vanderbilt Univ., 1898	1898	1898
Wilson, Albert R., Greensboro, (Hon.); Jeff. Med. Coll., 1882; U.N.C.	1882	1882
Wolfe, H. C., Greensboro; Med. Coll. of Va., 1917	1917	1920
Wolff, D. R., Greensboro; Jeff. Med. Coll., 1918; U.N.C.	1918	1920
Woodruff, Fred G., High Point; Med. Coll. of Va., 1917	1917	1919
York, Alexander A., High Point; Chattanooga Med. Coll., 1907	1907	1909

HALIFAX COUNTY SOCIETY

President: Bahnson Weathers, Roanoke Rapids; Wash. Univ. Med. Sch., St. Louis, 1917	1921	1922
Secretary: Z. P. Mitchell, Weldon; Med. Coll. of Va., 1920	1920	1921
Beckwith, R. P., Roanoke Rapids; Univ. of Pa., 1911	1913	1916
Covington, J. M. C., Roanoke Rapids	.....	1933
Jarman, F. G., Roanoke Rapids; Univ. Coll. of Med., Va., 1911	1914	1916
Lassiter, H. G., Weldon; Jeff. Med. Coll., 1918; U.N.C.	1918	1920
Long, T. W. M., Roanoke Rapids; Univ. Coll. of Med., Va., 1908; U.N.C.	1909	1910
Martin, J. W., Roanoke Rapids; Med. Coll. of Va., 1916	1919	1920
Neville, C .H., Scotland Neck; Tulane Univ., 1927	1927	1927
Nicholson, B. M., Enfield; Va. Univ. Coll. of Med., 1910	1910	1913
Palmer, Horace, Littleton; Atla. Sch. of Med., 1912	1912	1920
Royster, Thomas H., Roanoke Rapids; Univ. Coll. of Med., Richmond, 1908; U.N.C.	1908	1914
Smith, O. F., Scotland Neck; Univ. Coll. of Va., 1899; U..N.C.	1899	1904
Suiter, W. G., Weldon; Med. Coll. of Va., 1917	1917	1920
Thigpen, H. G., Scotland Neck; Jeff. Med. Coll., 1917; U.N.C.	1917	1920

HARNETT COUNTY SOCIETY

President: Fred Fleming, Coats	.....	1933
Secretary: A T. Wyatt, Lillington; Jeff. Med. Coll., 1919	1919	1927
Halford, Jos. W., Lillington; Geo. Wash. Univ., 1904	1905	1905
Hicks, Isham Faison, Dunn, (Hon.); N. C. Med. Coll., 1902	1902	1904
Highsmith, Charles, Dunn, (Hon.); Balt. Med. Coll., 1898	1898	1898
Holt, Wm. P., Erwin, (Hon.); Jeff. Med. Coll., 1895	1895	1901
Holt, Wm. P., Jr., Erwin; Jeff. Med. Coll., 1926; U.N.C.	1926	1927
McKay, Joseph F., Buies Creek, (Hon.); S. C. Med. Coll., 1884	1885	1900
McLean, John W., Godwin; N. C. Med. Coll., 1902	1902	1906
Martin, J. F., Dunn; N. C. Med. Coll., 1905	1905	1918
Melvin, Wayman C., Linden; Univ. Coll. of Med., Richmond, 1900	1900	1905
Odell, J. W., Dunn; Med. Dept. Univ. of Ga., 1926	1928	1929
Parker, Paul G., Erwin; Med. Coll. of Va., 1916	1916	1917
Peede, A. W., Lillington	.....	1933

HAYWOOD COUNTY SOCIETY

President: M. H. McCracken, Canton; Univ. of Louisville, 1930	1930	1933
Secretary: J. R. McCracken, Waynesville, (Hon.); N. C. Med. Coll., 1902	1902	1903
Abel, J. F., Waynesville, (Hon.); Univ. of Balt., 1892	1893	1899

Name and Address	Licensed	Joined State Society
Davis, F. M., Canton; Vanderbilt Univ., 1894	1894	1904
Duckett, V. H., Canton; Univ. of Pa., 1930	1930	1932
Francis, Wm. G., Waynesville; Jeff. Med. Coll., 1915; U.N.C.	1916	1925
Johnson, W. C., Canton; Tulane Univ. of La., 1912; U.N.C.	1912	1917
Kirkpatrick, W. L., Waynesville; Univ. Vanderbilt, 1894	1894	1895
Lancaster, N. F., Waynesville; Med. Coll. of Va., 1931	1932	1933
Moore, Roy H., Canton; Washington Univ., 1931; U.N.C.	1931	1934
Padgett, Chas. K., Waynesville; Jeff. Med. Coll., 1930	1930	1934
Pate, J. F., Canton; Med. Coll. of S. C., 1927	1927	1929
Reeves, J. L., Canton; Vanderbilt, 1913	1913	1917
Robinson, Robt. S., Hazelwood; Med. Coll. of Va., 1930	1930	1932
Russell, Jesse M., Canton; Univ. of Nashville, 1911	1911	1912
Stretcher, R. H., Waynesville; Rush Med. Coll., Chicago, 1927	1927	1930
Stringfield, Samuel L., Waynesville; Jeff. Med. Coll., 1905; U.N.C.	1905	1907
Stringfield, Thomas, Waynesville, (Hon.); Vanderbilt Univ., 1898; U.N.C.	1898	1899
Westmoreland, J. R., Canton; Washington Univ., 1932; U.N.C.	1932	1934

HENDERSON COUNTY SOCIETY

President:	.....	.....
Secretary: Robt. Hyatt Brown, Hendersonville; Jeff. Med. Coll., 1930; U.N.C.	1933	1934
Allen, W. O., Hendersonville; Med. Coll. of S. C., 1925	1926	1926
Bliss, F. E., Fletcher; Coll. of Med. Evangelists, 1933	1933	1934
Brackett, W. E., Hendersonville; Jeff. Med. Coll., 1915; U.N.C.	1915	1924
Brown, J. S., Hendersonville, (Hon.); Northwestern Univ., 1893	1894	1895
Brown, J. S., Jr., Hendersonville; Univ. of Tulane, 1925	1926	1927
Dixon, Guy E., Hendersonville, (Hon.); P. and S., St. Louis, 1903	1903	1903
Fauntleroy, Jas. W., Zirconia; P. and S., Columbia	1900	1930
Kirk, W. R., Hendersonville, (Hon.); Central Univ., 1891	1901	1903
Mallett, E. P., Hendersonville; L. I. Coll. Hosp., Brooklyn, 1889	1914	1914
Payne, J. W., Hendersonville; Md. Med. Coll., 1903	1924	1926
Salley, E. McQueen, Hendersonville; Univ. of Md., 1905	1905	1908
Sample, R. C., Hendersonville; Univ. of Pa., 1915; U.N.C.	1915	1919
Staton, L. R., Lynchburg, Va., Univ. of Md., 1929	1929	1931
Sumner, Thos. W., Fletcher; Jefferson Med. Coll., 1910; U.N.C.	1910	1911
Weddington, J. L., Hendersonville; Sou. Med. Coll., Atlanta, 1898	1925	1926
Woodcock, J. H., Hendersonville; Hos. College of Med., 1892	1894	1899

HERTFORD COUNTY SOCIETY

President: L. M. Futrell, Murfreesboro; Va. Med. Coll., 1914; U.N.C.	1914	1918
Secretary: D. W. Ruffin, Ahoskie; Med. Coll. of Va., 1932	1932	1932
Matheson, J. Gaddy, Ahoskie; Jeff., 1929; U.N.C.	1929	1931
Mitchell, Paul H., Ahoskie; Univ. Coll. of Med., Richmond, 1907	1907	1908
Pollard, W. B., Winton; Univ. of Pa., 1899	1903	1905
Ruffin, J. B., Powellsville; Univ. of the South, 1898	1906	1904
Walker, L. K., Ahoskie; Univ. of Md., 1911; U.N.C.	1911	1917

HOKE COUNTY SOCIETY

President: C. G. Milham, Sanatorium; Jeff. Med. Coll., 1927; U.N.C.	1927	1930
Secretary: R. A. Matheson, Raeford; Jeff. Med. Coll., 1926; U.N.C.	1926	1928
Bethune, A. C., Raeford	.....	.....
Bittinger, S. M., Sanatorium; Geo. Wash. Univ., 1918	1924	1924

Name and Address	Licensed	Joined State Society
Brown, G. W., Raeford; Ky. School of Med., Louisville, 1898	1900	1900
Easom, H. F., Sanatorium; Wash. Univ. Med. School; U.N.C.	1929	1929
McBrayer, L. B., Southern Pines, (Hon.); Louisville Med. Coll., 1889	1891	1900
McCain, P. P., Sanatorium; Univ. of Md., and Coll. P. and S., Balt., 1911	1914	1914
Murray, R. L., Raeford; Univ. of Md., 1923	1923	1925
Papineau, A., Sanatorium; Univ. of Penna., 1931	1933	1934
Thomas, C. D., Sanatorium; Univ. of Indiana, 1926	1930	1930
Thornton, W. F., Sanatorium; Baylor Univ., 1927	1927	1931
Williams, J. H., Sanatorium; Jeff. Med. Coll., 1920	1920	1922

HYDE COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Harris, Arthur Graham, Fairfield; Univ. of the So., 1905	1907	1908

IREDELL-ALEXANDER COUNTIES SOCIETY

President: G. W. Taylor, Mooresville; N. C. Med. Coll., 1906	1906	1917
Secretary: Chas. B. Herman, Statesville; Jeff. Med. Coll., 1923; U.N.C.	1923	1925
Alexander, Jas. M., Statesville; Georgetown Univ., 1925; U.N.C.	1926	1927
Anderson, Thos. Eli., Statesville, (Hon.); Jeff. Med. Coll., 1878	1879	1879
Bell, A E., Mooresville, (Hon.); Univ. of Md., and Coll. of P. and S., 1897	1897	1904
Crouch, T. D., Stony Point; N. C. Med. Coll., 1909, and Univ. of Md., 1910	1909	1915
Davis, Jas. W., Statesville; Univ. of Pa., 1913; U.N.C.	1913	1915
Easley, P. S., 2508 Pierce Ave., Nashville, Tenn.; N. C. Med. Coll., 1907 & Jeff. Med. Coll., 1908	1907	1913
Edgerton, G. S., Mooresville; Univ. of N. C., 1930 & Temple Univ., 1932	1932	1934
Edwards, A. M., Taylorsville; Emory Univ., 1907	.....	1934
Gibson, L. O., Statesville; N. C. Med. Coll., 1913	1913	1915
Gilmore, W. D., Tombstone, Ariz.; Univ. of N. C., 1903	1903	1904
Goode, T. V., Statesville; Univ. Coll. of Med., Va., 1912	1912	1916
Grady, F. M., Mooresvile; Univ. of Syracuse	1932	1934
Grose, Glenn, Harmony	.....	1934
Hedgpeth, E. McG., Chapel Hill; Univ. of Penna., 1931; U.N.C.	1931	1934
Jurney, Peter C., Turnersburg; Med. Coll. of Va., 1901	1901	1904
Leeper, Donald H., Hiddenite; N. C. Med. Coll., 1906	1906	1913
Little, Lonnie M., Statesville; Jeff. Med. Coll., 1925; U.N.C.	1925	1927
Long, H. F., Statesville, (Hon.); Balt. Med. Coll, 1891	1892	1893
McElwee, Ross S, Statesville; Univ. of Md., 1909	1909	1910
McLaughlin, J. E., Statesville, (Hon.); Univ. of Md., 1886	1886	1896
McLelland, W. D., Moresville; Jeff. Med. Coll., 1913	1913	1917
Myers, D. L., Jennings; Tulane, 1925	1928	1929
Nicholson, C. R., Statesville; N. C. Med. Coll., 1912	1912	1916
Pressly, Jas. L., Statesville; Jeff. Med. Coll., 1925	1925	1928
Price, H. L., Taylorsville; N. C. Med. Coll., 1914	1914	1930
Rhyne, S. A., Statesville; N. C. Med. Coll., 1915	1915	1920
Robertson, J. M., Charles	.....	1934
Sharpe, Frank L., Statesville; Univ. of N. C., 1904	1904	1905
Shaw, L. R., Statesville; Med. Coll. of Va., 1930	1930	1931
Sherrill, C. L., Statesville; N. C. Med. Coll., 1914	1914	1915
Sloan, A. B., Mooresville; Med. Coll. of Va., 1924	1924	1926
Talley, J. A., Troutman; Univ. of N. C., 1909	1910	1917

Name and Address	Licensed	Joined State Society
Tatum, Roy C., Statesville; Jeff. Med., 1919	1919	1920
Templeton, J. Y., Mooresville; Jeff. Med. Coll., 1912	1913	1927
Thurston, Asa, Taylorsville; Univ. of Md., 1909	1909	1914
Trivette, W. A., Houstonville; Med. Coll. of Va., 1916	1916	1925

JACKSON COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Candler, Chas. Z., Sylva; P. and S., Atlanta, 1901; U.N.C.	1901	1904
Nichols, A. A., Sylva; Univ. of Nashville, 1898	1904	1904
Nichols, Asbury S., Sylva; Tenn. Med. Coll., 1906	1907	1913
Wilkes, Grover C., Sylva; N. C. Med. Coll., 1916	1916	1920

JOHNSTON COUNTY SOCIETY

President:	.....	.....
Secretary: S. A. Duncan, Benson; Tulane Univ., 1924	1924	1926
Aycock, F. M., Princeton; Med. Coll. of Va., 1921	1921	1926
Booker, Edwin N., Selma; Univ. of Va., 1925	1925	1930
Davidian, Vartan A., Smithfield; Univ. Kiev, Russia	1929	1930
Fitzgerald, J. Herbert, Smithfield; Jeff. Med. Coll., 1920; U.N.C.	1920	1922
Grady, Jas. C., Kenly, (Hon.); Balt. Univ. School of Med., 1887	1887	1890
Hinnant, Milford, Micro; Univ. Med., 1912	1912	1913
Hocutt, Battle A., Clayton; Univ. of N. C., School of Med., 1906	1906	1908
Hooks, Thel., Smithfield, (Hon..); Med. Coll. of Va., 1901	1901	1903
McLemore, George A., Smithfield; Univ. of N. C., 1906	1906	1908
Massey, C. C., Smithfield; Jeff. Med. Coll., 1923; U.N.C.	1923	1925
Oliver, Robert D., Princeton; Univ. of Md., 1930	1930	1932
Parker, G. E., Benson, (Hon.); Coll. of P. and S., Balt., 1886	1889*	1904
Person, J. B., (Hon.); Med. Coll. of Va., 1897	1897	1900
Rose, A. H., Smithfield; Jeff. Med. Coll., 1906; U.N.C.	1906	1907
Stanley, John H., Four Oaks; Univ. of N. C., 1904	1904	1906
Utley, H H., Benson; Balt. Med. Coll., 1906	1906	1910
Vick, Geo. D., Selma; Jeff. Med. Coll., 1906; U.N.C.	1906	1907
Wilson, W. G., Smithfield; Jeff. Med. Coll., 1921; U.N.C.	1921	1924

JONES COUNTY SOCIETY

President: A. F. Hammond, Polloksville; Univ. Coll. of Med., Va. 1903	1903	1914
Secretary: B. W. Page, Trenton; Tulane Univ., 1909	1909	1919
Bell, J. C., Maysville; P. and S., Balt., 1910	1915	1922

LEE COUNTY SOCIETY

President:	.....	.....
Secretary: Floyd L. Knight, Sanford; Univ. of Va., 1924	1925	1926
Blue, Waylon, Jonesboro; Med. Coll. of Va., 1925	1925	1926
Chiles, George C., Sanford; Med. Coll. of Va., 1926	1928	1928
Foster, J. F., Sanford; N. C. Med. Coll., 1916	1916	1919
Lutterloh, I. Hayden, Jr., Sanford; Jeff. Med. Coll., 1921; U.N.C.	1921	1922
McIver, Lynn, Sanford, (Hon.); Kentucky Univ., 1901; U.N.C.	1902	1902
Matthews, M. L., Sanford; Univ. of N. C., 1903	1903	1904
O'Briant, A. L., Sanford; Jeff. Med. Coll., 1920; U.N.C.	1920	1922
Patterson, J. H., Broadway; Med. Coll. of Va., 1932	1932	1934
Sowers, Roy G., Jonesboro; Univ. of Md., 1923	1923	1924

* Registered.

LENOIR COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: Vance P. Peery, Kinston; Med. Coll. of Va., 1916	1917	1917
Secretary: Rachel D. Davis, Kinston; Women's Med. Coll. of Penna., 1932	1933	1934
Adams, L. C., LaGrange; N. C. Med. Coll., 1903	1903	1921
Boney, Elwood R., Kinston; Univ. of Pa., 1926; U.N.C.	1926	1927
Carr, M. L., LaGrange; Med. Coll. of Va., 1916	1916	1920
Hardy, Ira M., Kinston, (Hon.); Med. Coll. of Va., 1901; U.N.C.	1902	1902
Harrison, J. P., Kinston	.....	.....
Lee, Mike, Kinston; Tulane Univ., 1926	1926	1927
Lee, Thos. L., Kinston; Med. Coll. Va., 1926	1926	1927
Moseley, Z. V., Kinston; Va. Univ. Coll. of Med., 1913	1913	1914
Parrott, Albert DeK., Kinston; Univ. Coll. of Med., 1906; U.N.C.	1906	1908
Parrott, M. C., Kinston; Tulane Univ., 1917; U.N.C.	1917	1919
Parrott, Wm. T., Kinston, (Hon.); Tulane Univ., 1899	1899	1901
Register, F. M., Kinston, (Hon.); Ky. School of Med., 1893	1891	1904
Sabiston, Frank, Kinston; Univ. of Md., 1918; U.N.C.	1919	1926
Turley, F. C., Kinston; Vanderbilt, 1931	1933	1934
Turrentine, Kilby P., Kinston; Rush Med. Coll., 1931; U.N.C.	1932	1933
Tyndall, R. G., Kinston; Univ. of Pa., 1928	1928	1931
West, B. C., Kinston; Univ. of Pa., 1924; U.N.C.	1924	1926
West, C. F., Kinston; Univ. of Pa., 1917; U.N.C.	1917	1920
Whitaker, Paul F., Kinston; Med. Coll. of Va., 1922; U.N.C.	1922	1924
Wooten, Floyd P., Kinston; Jeff. Med. Coll., 1920; U.N.C.	1920	1923

LINCOLN COUNTY SOCIETY

President: W. G. Bandy, Lincolnton; Vanderbilt Univ., 1908	1912	1916
Secretary: W. V. Costner, Lincolnton; Jeff. Med. Coll., 1924; U.N.C.	1925	1927
Cornwell, A. M., Lincolnton; Geo. Wash. Univ., 1927	1927	1928
Crowell, L. A., Lincolnton, (Hon.); Balt. Med. Coll., 1892	1892	1898
Crowell, L. A., Jr., Lincolnton; Tulane Med. Dept., 1930; U.N.C.	1930	1930
Davidson, John E. S., Charlotte, (Hon.); Univ. of Md, 1898	1898	1898
Edwards, F. D., Lawndale, R. 1, Atlanta Med., 1914	1916	1919
Elliott, W. F., Lincolnton; Pa. Medico-Chir. Coll., 1916; U.N.C.	1916	1917
Gamble, J. F., Lincolnton; Univ. of Tenn., 1903	1915	1919
Gamble, J. R., Lincolnton; Univ. of Tenn., 1911	1911	1912
Hoover, C. H., Crouse; Chattanooga Med. Coll., 1900; Balt. Med. Coll., 1903	1903	1903
Jacocks, W. P., New York City; Univ. of Pa., 1911; U.N.C.	1911	1913
Morgan, A. E., Lincolnton; Jeff. Med. Coll., 1929	1929	1932

McDOWELL COUNTY SOCIETY

President: R. B. Butt, Marion; Emory Univ., Atlanta, 1920	1920	1921
Secretary: Frank Wood, Marion; Univ. of Pa., 1928; U.N.C.	1931	1932
Ashworth, B. L., Marion, (Hon.); P. and S., Balt., 1892	1893	1900
Jonas, John F., Marion, (Hon.); Balt. Med. Coll., 1903	1903	1903
Justice, Gaston B., Marion; P. and S., Atlanta, 1907; U.N.C.	1907	1907
Kirby, Guy S., Marion, (Hon.); Univ. Coll. of Va., 1897	1896	1903
McIntosh, D. M., Old Fort; Med. Coll. of Va., 1904	1907	1909
Miller, J. F., Marion; Med. Chi. Phila., 1906	1915	1919
Robinson, W. A., Old Fort; Med. Coll. of Va., 1900	1903	.....
Williams, Lester L., Marion; Md. Med. Coll., 1913	1913	1916

MACON-CLAY COUNTIES SOCIETY

Name and Address	Licensed	Joined State Society
President:	.....	.....
Secretary:	.....	.....
Angel, Edgar, Franklin; Jeff. Med. Coll., 1928	.....	.....
Angel, Furman, Franklin; Jeff. Med. Coll., 1918; U.N.C.	1923	1924
Fouts, J. H., Franklin; Vanderbilt Univ., 1895	1895	1918
Killian, Frank M., Franklin; Univ. of Louisville, Ky., 1929	1929	1930
Rogers, W. A., Franklin, (Hon.); Univ. of Nashville, 1898	1898	1898

MADISON COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Ditmore, Harry B., Marshall; Univ. of Pa., 1925	1925	1928
Kimberly, David, Jr., Hot Springs; Univ. of Cinn., 1924; U.N.C.	1926	1927
McElroy, J. L., Marshall; Washington Univ., 1930; U.N.C.	1930	1932
Moore, Jos. N., Marshall; Univ. of N. C., 1905	1905	1909
Sams, W. A., Marshall; Lincoln Memo., 1911	1919	1920

MARTIN-WASHINGTON-TYRRELL COUNTIES SOCIETY

President:	.....	.....
Secretary: Jas. S. Rhodes, Williamston; Med. Coll. of Va., 1906	1906	1907
Bray, T. L., Plymouth; Univ. of Md., 1916	1916	1919
Chaplin, S. C., Columbia	.....	.....
McGowan, Claudius, Plymouth; Med. Coll. of Va., 1917	1917	1922
Nelson, Robert J., Robersonville, (Hon.); Louisville Med. Coll., 1890	1890	1893
Pittman, E. E., Oak City; Med. Coll. of Va., 1919	1919	1920
Saunders, Jos. H., Williamston; Univ. Coll. of Med., Va., 1905; U.N.C.	1905	1909
Smithwick, James E., Jamesville, (Hon.); Univ. Coll. of Med., 1897	1897	1904
Ward, Jesse E., Robersonville; Univ. of Md., 1904; U.N.C.	1904	1905
Ward, Vernon Albert, Robersonville; Jeff. Med. Coll., 1908; U.N.C.	1908	1914

MECKLENBURG COUNTY SOCIETY

President: John Stuart Gaul, Charlotte; Medico-Chir., Phila., 1913	1922	1923
Secretary: R. B. McKnight, Charlotte; Univ. of Pa., 1920; U.N.C.	1920	1928
Adams, J. R., Charlotte; Univ. of Va., 1928	1932	1933
Alexander, M. Janet, Montgomery, India; Women's Med. Coll., Pa., 1917	1917	1918
Allan, William, Charlotte; P. and S., Balt., 1906	1906	1914
Allen, Sylvia, Charlotte; Columbia Univ., 1926	1932	1933
Ashe, J. R., Charlotte; Columbia Univ., 1911	1915	1915
Barret, H. P., Charlotte; Univ. of Louisville, 1908	1917	1919
Barron, A. A., Charlotte; Vanderbilt Univ., 1909	1910	1910
Black, Geo. Wm., Charlotte; Med. Coll. of Va., 1924	1924	1925
Blair, Andrew, Charlotte; U. of Pa., 1924	1925	1926
Bost, T. C., Charlotte; Geo. Washington Univ., 1915	1920	1921
Bradford, W. Z., Charlotte; Univ. of Pa., 1928	1928	1930
Brenizer, A. G., Jr., Charlotte; Johns Hopkins, 1908, and Univ. of Heidelberg; U.N.C.	1911	1911
Britt, C. S., Charlotte; Emory Univ., 1920	1925	1926
Buckner, Margaret, Charlotte; Med. Coll. of Va., 1929	1929	1932
Chambers, P. J., Charlotte; Jeff. Med. Coll., 1929	1932	1933
Choate, A. B., Charlotte; Med. Coll. of Va., 1929	1929	1933

Name and Address	Licensed	Joined State Society
Craven, Thomas, Huntersville; Jeff. Med. Coll., 1917; U.N.C.	1917	1918
Craven, W. W., Charlotte; Univ. of Md., 1903; U.N.C.	1904	1904
Crowell, Andrew J., Charlotte, (Hon.); Univ. of Md., 1893	1892	1894
Davis, Stephen W., 501 Professional Bldg., Charlotte, N. C.; Univ. of Pa. Med. School, 1927; U.N.C.	1927	1929
Davis, T. M., Charlotte; Univ. of Md., 1914	1931	1933
Elliott, J. A., Charlotte; Univ. of Mich., 1914	1919	1920
Faison, Elias, Charlotte; Emory Univ., 1929	1929	1933
Ferguson, R. T., Charlotte; Univ. Coll. of Va., 1906	1909	1909
Fleming, L. E., Charlotte; Univ. of Pa., 1931	1931	1934
Franklin, Ernest W., Jr., Charlotte; Univ. of Pa., 1930; U.N.C.	1930	1932
Gage, L. G., Charlotte; Univ. of Va., 1915	1921	1922
Gallant, Robert M., Charlotte; N. C. Med. Coll., 1915	1915	1916
Gibbon, James W., Charlotte; Jeff. Med. Coll., 1918	1920	1921
Gibbon, Robert L., Charlotte, (Hon.); Jeff. Med. Coll., 1887	1887	1888
Hamer, W. A., Chadwick Station, Charlotte; Univ. of Md., 1930	1930	1932
Hand, Edgar H., Charlotte; N. C. Med. Coll., 1907	1907	1913
Hart, V. K., Charlotte; Univ. of Pa., 1921	1924	1925
Hipp, Edw. R., Charlotte; Univ. of Va., 1918	1920	1921
Houser, O. J., Charlotte; N. C. Med. Coll., 1914	1914	1916
Hovis, L. W., Charlotte; N. C. Med. Coll., 1904; U.N.C.	1904	1906
Hunt, J. S., Charlotte; Vanderbilt Univ., 1929	1932	1933
Hunter, W. Myers, Charlotte; Georgetown Univ., 1905	1906	1908
Kelly, Luther W., Charlotte; Univ. of Va., 1924	1926	1927
Kennedy, John P., Charlotte; Jeff. Med. Coll., 1915	1915	1920
King, Parks M., Charlotte, (Hon.); Bellevue Med. Coll., 1902	1902	1904
Kremer, C. E., Jr., Charlotte; Harvard Univ., 1929	1931	1932
Lafferty, Robert H., Charlotte; N. C. Med. Coll., 1906	1906	1908
Leinbach, Robt. F., Charlotte; Univ. of Pa., 1907; U.N.C.	1907	1910
MacConnell, John W., Davidson; Univ. of Md., 1907	1908	1909
McCoy, Thos. M., Charlotte; N. C. Med. Coll., 1905	1906	1910
McGregor, Geo. D., Charlotte; Univ. of Va., 1925	1927	1928
McKay, Hamilton W., Charlotte; N. C. Med. Coll., 1909; Jeff. Med. Coll., 1910	1911	1913
McKay, Robert W., Charlotte; Johns Hopkins, 1923	1928	1928
McPhail, L. D., Charlotte; Univ. of Md., 1900; U.N.C.	1900	1902
McPheeters, S. B., Charlotte; Washington Univ., 1906	1933	1934
Martin, Wm. F., Charlotte; Univ. of Md., 1920	1920	1923
Martin, W. J., Richmond, Va.; Univ. of Va., 1890	1891	1919
Matheson, James P., Charlotte; Univ. of Md., 1905	1902	1907
Mathews, Vann M., Charlotte; Univ. of Pa., 1918	1918	1921
Mayer, W. B., Charlotte; Univ. of Pa., 1930	1932	1933
Meisenheimer, Thos. M., Charlotte; S. C. Med. Coll., 1925	1925	1927
Miller, Oscar L., Charlotte; Atlanta Coll. of P. and S., 1912	1921	1922
Moore, Alexander W., Charlotte; Univ. of Va., 1901; Univ. and Bellevue Hosp. Mde. Coll., 1902	1912	1913
Moore, Oren, Charlotte; N. C. Med. Coll., 1911	1911	1912
Moore, R. A., Charlotte; Univ. of Pa., 1923	1924	1925
Motley, Fred Elliot, Charlotte; Univ. of Mich., 1922	1926	1927
Munroe, H. Stokes, Charlotte; N. C. Med. Coll., 1902; Jeff. Med., 1903	1902	1904
Munroe, J. P., Charlotte, (Hon.); Univ. of Va, 1885	1886	1890
Myers, Alonzo, Charlotte; N. C. Med. Coll., 1911; Bellevue Hosp. Med. Coll., 1916	1911	1920

Name and Address	Licensed	Joined State Society
Nalle, B. C., Charlotte; Univ. of Va., 1903	1905	1905
Nance, C. L., Charlotte; N. C. Med. Coll., 1919	1921	1922
Neblett, H. C., Charlotte; Med. Coll. of Va., 1914	1921	1929
Newell, Leon B., Charlotte; Univ. of N. C., 1905; U.N.C.	1905	1908
Newton, Howard L., Charlotte; Northwestern Univ., 1921	1923	1924
Nisbet, D. Heath, Charlotte; Harvard Med. Dept., 1917	1917	1920
Nisbet, Walter O., Charlotte, (Hon.); Med. Coll. of S. C., 1889	1889	1889
Northington, J. M., Charlotte; Med. Coll. of Va., 1905	1909	1909
Nowlin, Preston, Charlotte; Univ. of Va., 1924	1929	1930
Patterson, Reid, Charlotte; N. C. Med. Coll., 1912	1912	1913
Peeler, Clarence N., Charlotte; N. C. Med. Coll., 1906	1906	1908
Petteway, George H., Charlotte; N. C. Med. Coll., 1913	1913	1914
Phillips, C. C., Charlotte; N. C. Med. Coll., 1912	1912	1917
Rankin, Watson S., Charlotte, (Hon.); Univ. of Md., 1901	1901	1901
Ranson, J. Lester, Charlotte; N. C. Med. Coll., 1911	1911	1912
Ray, F. L., Charlotte; Univ. of Va., 1919	1919	1922
Rea, G. L., Charlotte; N. C. Med. Coll., 1906	1920	1933
Robinson, C. W., Charlotte; Univ. of Pa., 1930; U.N.C.	1930	1932
Sasser, T J., Charlotte; Univ. Ga. Med. Dept., 1926	1929	1929
Scruggs, W. Marvin, Charlotte; Univ. of Pa., 1914	1914	1920
Seay, Hillis L., Huntersville; Vanderbilt Univ., 1930	1933	1934
Shirley, H. C., Charlotte; Johns Hopkins, 1918	1921	1922
Shull, J. Rush, Charlotte; Univ. of Pa., U.N.C.	1910	1913
Sloan, H. L., Charlotte; Univ. of Pa., 1911	1913	1914
Smith, F. C., Charlotte; Jeff. Med., 1921; U.N.C.	1921	1925
Sparrow, Thos. De L., Charlotte; Univ. of Pa., 1920	1920	1923
Squires, Claude B., Charlotte; Jeff. Med. Coll., 1919; U.N.C.	1919	1921
Strong, Charles M., Charlotte, (Hon.); Univ. of Md., 1889	1889	1898
Taylor, H. C., Charlotte, Chadwick Sta.; Tenn. Med., 1886	1910	1915
Thompson, S. R., Charlotte; N. C. Med. Coll., 1914	1914	1915
Todd, L. C., Charlotte; Univ. of Mich., 1918	1920	1920
Tucker, John H., Charlotte; Univ. of Va., 1899	1901	1911
Tydeman, F. W. L., San Francisco, Calif.; N. C. Med. Coll., 1912	1912	1918
Wakefield, Harry A., Charlotte; N. C. Med. Coll., 1908	1908	1911
Wannamaker, Edward J., Jr., Charlotte; Univ. of Pa., 1921	1924	1924
Ward, W. C., Pineville; Univ. of Louisville	1931	1934
Whisnant, Albert M., Charlotte, (Hon.); P. and S., Balt., 1893	1893	1899
White, Thomas Preston, Charlotte; Univ. of Pa., 1922	1924	1925
Wingate, G. C., Charlotte; N. C. Med. Coll., 1914	1915	1919
Winkler, Harry, Charlotte; Rush Med. Coll., 1929	1931	1931
Wishart, Wm. E., Charlotte; N. C. Med. Coll., 1911	1911	1911

MITCHELL COUNTY SOCIETY

President:	.....	.....
Secretary: Paul McBee, Bakersville; Virginia, 1930	1930	1933
Gouge, A. E., Bakersville; Med. Coll. of Va., 1917	1917	1920
Peterson, C. A., Spruce Pine; N. C. Med. Coll., 1907	1907	1908

MONTGOMERY COUNTY SOCIETY

President: W. T. Harris, Troy; Med. Coll. of Va., 1925	1926	1927
Secretary: Charles Daligny, Troy, (Hon.); Univ. of Paris, 1878	1889	1891
Coppedge, N. P., Candor	.....	1910
Griffin, H. L., Star; Med. Coll. of Va., 1926	1926	1928
Ingram, Charles B., Mt. Gilead, (Hon.); Jeff. Med. Coll., 1886	1886	1892

Name and Address	Licensed	Joined State Society
McMillan, J. M., Candor; P. and S., Atlanta, 1909	1909	1911
Nicholson, N. G., Jr., Mt. Gilead; N. C. Med. Coll., 1917	1917	1920
Rankin, Pressly R, Mt. Gilead; N. C. Med. Coll., 1910	1910	1912
Thompson, Alexander Frank, Troy, (Hon.); Med. Coll. of Indiana, 1895; U.N.C	1895	1904

MOORE COUNTY SOCIETY

President: A. McNeil Blair, Southern Pines; Niagara Univ., 1897	1904	1906
Secretary: R. G. Rosser, Vass; N. C. Med. Coll., 1909	1909	1917
Blue, A. McN., Carthage; Tulane Univ., 1915; U.N.C	1916	1917
Bowen, J. P., Southern Pines; Univ. of Md., 1929	1932	1934
Bowman, H. E., Aberdeen; N. C. Med. Coll., 1904	1904	1919
Chester, P. J., Southern Pines; N. C. Med. Coll., 1913	1913	1920
Dickie, J. W., Southern Pines; Jeff. Med. Coll., 1918	1920	1921
Felton, R. L., Jr., Carthage; Univ. of Pa., 1927; U.N.C	1927	1929
Grier, Charles T., Carthage; N. C. Med. Coll, 1910	1912	1913
McDuffie, W N., Hemp; Emory Univ. Sch. of Med., Atlanta, 1916	1920	1921
McLeod, A. H., Aberdeen, (Hon.); Balt. Med. Coll., 1896; U.N.C	1896	1904
McLeod, Vida C., Southern Pines; Baylor Univ., 1919	1931	1931
McLeod, W. G., Southern Pines; Baylor Univ., 1921	1926	1927
Marr, W. M., Pinehurst; Tufts Coll. Med. Sch., Boston, 1907	1909	1915
Milliken, J. S., Southern Pines; Jeff. Med. Coll., 1915; U.N.C	1915	1916
Monroe, C. R., Pinehurst; Univ. of Md., 1924; U.N.C	1925	1928
Mudgett, W. C., Southern Pines; Maryland Med. Coll., 1903	1908	1911
Overcash, W. E., Southern Pines; Univ. of Penna., 1926; U.N.C	1926	1934
Poate, E. M., Southern Pines; Cornell Univ. Med. Coll., 1906	1921	1931
Shields, Henry B, Carthage, (Hon.); Atlanta Med. Coll., 1882	1887	1901
Symington, John, Carthage; Univ. of Md., 1902	1927	1928
Street, M. E., Glendon, (Hon.); P. and S., Balt., 1893	1893	1902

NEW HANOVER COUNTY SOCIETY

President:	.....	.....
Secretary: Graham B. Barefoot, Wilmington; Jeff. Med. Coll., 1923	1923	1924
Bellamy, Robert H., Wilmington, (Hon.); Jeff. Med. Coll., 1902; U.N.C	1902	1902
Bullock, Ernest S., Wilmington; Univ. of Md., 1911	1911	1911
Coddington, H. A., Wilmington; Univ. of Md., 1911	1915	1917
Cranmer, J. B., Wilmington; Univ. of N. C., 1905	1905	1907
Crouch, A. McR., Wilmington; Jeff. Med. Coll., 1916; U.N.C	1916	1918
Elliott, A. H., Wilmington; Jeff. Med. Coll., 1919; U.N.C	1919	1921
Evans, J. E., Wilmington; Univ. of Md., 1916	1916	1916
Farthing, L. E., Wilmington; Univ. of N. C., 1906	1906	1913
Freeman, J. D., Wilmington; Med. Coll. of Va., 1918	1921	1922
Galloway, Walter Curtis, Wilmington, (Hon.); Washington Univ., 1874	1880	1880
Hare, R. B., Wilmington; Med. Coll. of S. C., 1930	1933	1934
Hariss, Andrew H., Wilmington, (Hon.); Medico-Chir., Phila., 1893	1892	1894
Hoggard, J. T., Wilmington; Univ. Med. Coll., Rich., 1906	1906	1922
Hooper, Joseph W., Wilmington; Univ. of Md., 1909	1912	1919
Jewett, Robert D., Wilmington, (Hon.); Univ. of Va., 1888	1890	1890
Johnson, Geo. W., Wilmington; Univ. of Pa., 1920; U.N.C	1920	1921
Koonce, Donald, Wilmington; Univ. of Pa., 1929	1929	1934
Koonce, S. Everett, Wilmington, (Hon.); P. and S., Balt., 1896	1896	1900
McMillan, W. D., Wilmington, (Hon.); Univ. of Md., 1869	1889*	1892

Name and Address	Licensed	Joined State Society
Mebane, W. C., Wilmington; N. C. Med. Coll., 1905; U.N.C.	1905	1916
Mebane, W. C., Jr., Wilmington; Grad., 1931	1932	1934
Moore, W. Houston, Wilmington; Jeff. Med. Coll., 1910; U.N.C.	1910	1911
Murchison, D. R., Wilmington; Johns Hopkins, 1916	1922	1923
Nesbitt, Charles T., Wilmington; Balt. Med. Coll., 1893	1907	1908
Powers, Frank P., Wilmington; Univ. of Pa., 1927	1927	1928
Robertson, James F., Wilmington; Univ. of Pa., 1913	1913	1916
Rourk, M. H., Wilmington; Univ. Minn., 1929; U.N.C.	1930	1931
Schonwald, John T., Wilmington, (Hon.); Long Island Coll. Hosp., 1879	1880	1881
Sidbury, J. B., Wilmington; Columbia Univ., N. Y., 1912	1915	1916
Sloan, D. B., Wilmington; Univ. of Pa., 1914; U.N.C.	1914	1920
Smith, Slade A., Wilmington; N. C. Med. Coll., 1907	1907	1921
Sullivan, Victor, Wilmington; Grad., 1931	1931	1934
Wessell, John C., Wilmington, (Hon.); Univ. of Md., 1900	1900	1900
Wolfe, N. C., Burgaw; Univ. of N. C.	.....	1934

NORTHAMPTON COUNTY SOCIETY

President:	.....	.....
Secretary: Marion H. Sewell, Jackson; Med. Coll. of Va.	1926	1927
Cooke, Q. H., Rich Square; Univ. of N. C.	.....	1934
Fleetwood, Jos. A., Conway; Tulane, 1921	1921	1923
Hodge, A. R., Severn; Med. Coll., Va., 1925	1925	1926
Lewis, H. W., Jackson, (Hon.); Univ. of N. Y., 1877	1889*	1887
Lister, J. L., Jackson; Med. Coll. of Va., 1896	1896	1909
Parker, J. W., Jr., Seaboard	.....	1934
Vick, Chas. L., Seaboard	.....	1934

ONSLOW COUNTY SOCIETY

President: Lorenza D. Bryan, Sneed's Ferry; Tulane, 1910; U.N.C.	1910	1911
Secretary: John P. Henderson, Jacksonville; Va. Med. Coll., 1918	1919	1921
Corbett, J. P., Swansboro; Wash. Univ. School of Med., 1928; U.N.C.	1928	1930
Cox, E. L., Jacksonville, (Hon.); Univ. of Md., 1889	1889	1892
Sutton, Carl W., Richlands; Tulane, 1905; U.N.C.	1905	1907
Turlington, W. I., Jr., Jacksonville; Univ. of N. Y., 1929; U.N.C.	1929	1930

PAMLICO COUNTY SOCIETY

President: D. A. Dees, Bayboro; Balt. Med. Coll., 1903	1903	1905
Secretary: J. J. Purdy, Oriental; Med. Coll. of Va., 1900	1914	1915
Daniels, O. C., Oriental; Med. Coll. of Va., 1903; U.N.C.	1903	1916
McCotter, St. Elmo, Bayboro; P. and S., Atlanta, 1908	1908	1909

PASQUOTANK-CAMDEN-CURRITUCK-DARE COUNTIES SOCIETY

President:	.....	.....
Secretary:	.....	.....
Barkwell, J. H., Weeksville; Atla. Sch. of Med., 1908	1924	1925
Fearing, Isaiah, Elizabeth City, (Hon.); P. and S., Balt., 1896	1896	1904
Griggs, W. T., Poplar Branch, (Hon.); Univ. of Va., 1896	1896	1901
Hoyle, Hughes B., Manteo; N. C. Med. Coll., 1896	1896	1904
Johnston, W. W., Manteo; N. C. Med. Coll., 1913	1913	1920

* Registered.

Name and Address	Licensed	Joined State Society
Kenfield, H. W., Hatteras	1924	1933
Mann, E. M., Moyock; Med. Coll., Va., 1931; U.N.C.	1932	1933
Mann, S. M., Moyock; P. and S., Baltimore, 1895; U.N.C.	1895	1904
Peters, W. A., Elizabeth City; Med. Coll. of Va., 1915	1915	1916
Sawyer, W. W., Elizabeth City, (Hon.); Univ. of Md., 1903; U.N.C.	1903	1904
Walker, H. D., Elizabeth City, (Hon.); Univ. of Md, 1902	1902	1902
Ward, I. A., Elizabeth City; Univ. of N. C., 1907	1907	1915
White, W. H. C., Elizabeth City; Univ. of Va., 1922	1929	1929
Williams, Claude B., Elizabeth City; Univ. Coll. Med., Richmond, 1903	1903	1907

PENDER COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Taylor, W. I., Burgaw; N. C. Med. Coll., 1902	1904	1905

PERSON COUNTY SOCIETY

President: John H. Merritt, Woodsdale, Rt. 1; Univ. of N. C., 1906	1907	1908
Secretary: H. M. Beam, Roxboro; Columbia Univ., 1918	1918	1919
Clay, E. L., Timberlake; Univ. of Kentucky, 1929	1929	1933
Gentry, Geo. W., Roxboro; Univ. of N. C., 1910	1910	1911
Love, Bedford E., Roxboro; Univ. of Md., 1904	1904	1905
Nichols, Austin F., Roxboro; Univ. of N. C., 1908	1908	1909
Thaxton, B. A., Roxboro; Jeff. Med. Coll., 1914	1914	1916

PITT COUNTY SOCIETY

President: Thos. G. Basnight, Stokes; Univ. of Md., 1904; U.N.C.	1905	1907
Secretary: W. M. B. Brown, Greenville; Med. Coll. of Va., 1929	1929	1931
Barrett, J. M., Greenville; Univ. of Pa., 1926; U.N.C.	1926	1927
Beasley, E. B., Fountain; Univ. of Pa. School of Med., 1911; U.N.C.	1911	1915
Bonner, H. M., Greenville; Med. Coll. of Va, 1897	1897	1918
Crisp, S. M., Greenville; Univ. of Pa., 1923; U.N.C.	1923	1925
Dixon, G. G., Ayden; Med. Coll. of Va., 1915; U.N.C.	1915	1917
Dixon, Wm. H., Ayden, (Hon.); Med. Coll. of Va., 1901; U.N.C.	1901	1901
Frizzelle, M. T., Ayden; Univ. Coll. of Med, Richmond, 1907	1907	1909
Garrenton, Cecil, Bethel; Med. Coll. of Va., 1908	1908	1915
Liverman, J. S., Winterville	.....	1934
McGeachy, R. S., Greenville, (Hon.); Bellevue Hosp., 1894	1894	1895
Nobles, Jos. E., Greenville, (Hon.); Jeff. Med. Coll., 1899; U.N.C.	1899	1902
Pace, K. B., Greenville; Jeff. Med. Coll., 1914; U.N.C.	1914	1920
Skinner, Louis Cotton, Greenville, (Hon.); Univ. of Md., 1901	1901	1903
Smith, Joseph, Greenville; Med. Coll. of Va., 1914	1916	1920
Stevens, A. H., Jr., Farmville; Med. Dept. Univ. of Ga., 1932	1933	1934
Swindell, C. L., Grimesland; Univ. of Md., 1909	1909	1920
Tyson, J. J., Ayden; Med. Coll. of Va., 1928	1928	1930
Watson, Thomas M., Greenville; Tulane Univ., 1919	1919	1920
Willis, W. M., Farmville; Med. Coll. of Va., 1914	1915	1924
Winstead, J. L., Greenville; Med. School of Univ. of Md., 1925; U.N.C.	1925	.....
Wooten, W. I., Greenville; Jeff. Med., 1920; U.N.C.	1920	1920

POLK COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: L. Rosa H. Gantt, Tryon; Med. Coll. of S. C., 1901	1927	1932
Grady, Wm. Earle, Tryon, (Hon.); Univ. of Md., and P. and S., Balt., 1894	1895	1899
Jervey, A. J., Tryon; Med. Coll. of S. C., 1905	1923	1925
Lea, J. I., Tryon; Mich. Coll. of Med. and Surg., 1906	1916	1925
Palmer, M. C., Tryon; Med. Coll. of S. C., 1910; U.N.C.	1911	1914
Smith, D. L., Saluda and Spartanburg, S. C.; S. C. Med. Coll., 1903	1926	1927

RANDOLPH COUNTY SOCIETY

President:	.....	.....
Secretary: J. H. Soady, Asheboro; Toronto Univ., 1906	1924	1926
Barnes, J. T., Asheboro; Med. Coll. of Va., 1929	1929	1932
Craven, F. C., Asheboro; Univ. of Md., 1913	1913	1914
Gregg, A. D., Liberty; Med. oll. of S. C., 1913	1927	1928
Hubbard, Charles C., Farmer, (Hon.); Jeff. Med. Coll., 1888	1890	1900
Johnson, J. R., Ramseur; Med. Coll. of Va., 1927	1927	1929
Lambert, W. L., Asheboro; Jeff. Med. Coll., 1921; U.N.C.	1921	1923
Redding, Alex. H., Cedar Falls, (Hon.); Coll. of P. and S., Balt., 1887	1889*	1900
Sumner, G. H., Asheboro; Tulane Univ., 1923; U.N.C.	1923	1924
Sykes, R. P., Asheboro; Tulane Med. Coll., 1929	1929	1932
Tate, C. S., Ramseur; Balt. Med. College, 1893	1896	1914

RICHMOND COUNTY SOCIETY

President: C. O. Bristow, Rockingham; Jeff. Med. Coll., 1918	1920	1921
Secretary: A. C. Everett, Rockingham; Univ. of Md., 1897	1897	1903
Caddell, G. C., Hoffman; N. C. Med. Coll., 1912	1912	1930
Garrett, F. B., Rockingham; N. C. Med. Coll., 1912	1912	1914
Hatcher, M. A., Hamlet; Med. Coll. of Va., 1918	1920	1921
Henry, T. B., Rockingham; Columbia Univ. Coll. P. and S., N. Y., 1917; U.N.C.	1920	1921
Howell, W. L., Ellerbe; N. C. Med. Coll., 1910	1910	1911
James, W. D., Hamlet; Jeff. Med. Coll., 1908; U.N.C.	1908	1908
Kinsman, Henry F., Hamlet; Univ. of Vermont, 1894	1897	1904
Ledbetter, James McQ., Rockingham; Vanderbilt Univ., 1894; U.N.C.	1894	1903
Long, Z. F., Rockingham; Univ. of Pa., 1928; U.N.C.	1928	1930
Parsons, W. H., Ellerbe; N. C. Med. Coll., 1916	1916	1919
Stancill, Wm. W., Rockingham; Univ. Coll. o fMed., Va., 1906	1906	1914
Teague, S. E., Hamlet; Tulane Univ. of La., 1921	1921	1923
Terry, Wm. Calvin, Hamlet; N. C. Med. Coll., 1911	1912	1914

ROBESON COUNTY SOCIETY

President: John McNeill Smith, Rowland; Jeff. Med. Coll., 1908; U.N.C.	1908	1909
Secretary: A. B. Holmes, Fairmont; Jeff. Med. Coll., 1910; U.N.C.	1910	1914
Allen, G. C., Lumberton; Rush Med. Coll., 1932	1933	1934
Baker, Horace M., Lumberton; Harvard Med. School, 1917	1919	1919
Beam, R. S., Lumberton; Jeff. Med. Coll., 1912; U.N.C.	1912	1915
Benson, N. O., Lumberton; Med. Dept. Univ. of Ga., 1930	1933	1934
Bowman, E. L., Lumberton; Med. Coll. of Va., 1914	1914	1916

* Registered.

Name and Address	Licensed	Joined State Society
Britt, J. N., Lumberton; Atlanta Med. Coll., 1914	1923	1924
Faulk, J. G., Pembroke; Med. Coll. of Va., 1931	1931	1932
Hardin, E. R., Lumberton; Univ. of Ga., 1911	1915	1920
Hayes, A. H., Fairmont; Atlanta Med. Coll., 1917	1917	1919
Hedgpeth, L. R., Lumberton; Univ. of Md., 1933	1933	1934
Hodgin, H. H., Red Springs; Univ. of Md., 1905; N. C. Med. Coll., 1906	1906	1907
Johnson, C. T., Red Springs; Jeff. Med. Coll., 1920	1920	1922
Johnson, Thomas C., Lumberton, (Hon.); Med. Coll. of Va., 1903	1903	1903
McClelland, Joseph O., Maxton; Med. Coll. of Va., 1908	1912	1913
McIntyre, Stephen, Lumberton; Jeff. Med. Coll., 1928	1928	1930
McMillan, Benj. F., Red Springs, (Hon.); Univ. of Md., 1882; U.N.C.	1884	1884
McMillan, R. D., Red Springs; Univ. of Md., 1910; U.N.C	1911	1912
Martin, J. A., Lumberton; Med. Coll. of Va., 1915	1915	1917
Nash, J. Fred, St. Pauls; N. C. Med. Coll., 1914	1914	1916
Poole, Claude T., St. Pauls; N. C. Med. Coll., 1909	1909	1913
Pope, Henry T, Lumberton, (Hon.); N. C. Med. Coll., 1894	1893	1902
Reed, D. H., Maxton; Geo. Wash. Univ., 1901	1904	1917
Ricks, Leonard E., Fairmont, (Hon.); Med. Coll. of Va., 1896	1896	1913

ROCKINGHAM COUNTY SOCIETY

President:		
Secretary: B. F. Cozart, Reidsville; Med. Coll. of Va., 1931	1931	1931
Anderson, L. L., Madison; Med. Coll. of Va., 1927	1927	1929
Carter, P. C., Madison; Univ. of Md., 1916	1916	1920
Casteen, Kenan, Leaksville; Univ. of Bellevue Hosp., Med. Coll., 1918	1919	1921
Cummings, M. P., Reidsville; Jeff. Med. Coll., 1911; U.N.C	1911	1914
Dillard, G. P., Draper; Bennett Med. Coll., 1916	1916	1919
Dixon, Hubert C., Leaksville; Univ. and Bellevue Hosp. Med. Coll., 1916	1916	1921
Ferneyhough, W. T., Reidsville; W. of M., 1916	1926	1927
Hester, William, Reidsville; Jeff. Med. Coll., 1926; U.N.C	1929	1930
Jett, Samuel G., Reidsville; Univ. of the South, 1903	1908	1911
Johnson, W. A., Reidsville; N. C. Med. Coll., 1907	1909	1910
McAnally, James McG., Reidsville; Univ. of Penna., 1927; U.N.C.	1927	1927
McBryde, M H., Reidsville; Univ. Coll. of Med., Richmond, 1901	1901	1904
McGehee, John Wm., Reidsville; Univ. of Md., 1904	1904	1905
Matthews, Wm. W., Leaksville; Chicago Coll. of Med. and Surg., 1913	1915	1918
Ray, John B., Leaksville; Balt. Med. Coll., 1898	1898	1898
Ray, S. P., Leaksville; Univ. of Pa., U.N.C	1929	1931
Stewart, J. T., Summerfield	1898	1898
Taylor, T. G., Leaksville; Ky. Sch. of Med., 1877	1909	1910
Tuttle, A. F., Spray; N. C. Med. Coll., 1901	1901	1907
Tyner, Carl V., Leaksville; Univ. and Bellevue Hosp. Med. Coll., N. Y., 1916	1916	1919
Watson, Paul S., Madison; Med. Coll. of S. C., 1928	1928	1928
Wilson, N. G., Madison; N. C. Med. Coll., 1914	1914	1914

ROWAN COUNTY SOCIETY

President:		
Secretary: J. M. Ketchie, Salisbury; Jeff. Med. Coll., 1922; U.N.C.	1922	1925
Armstrong, C. W., Salisbury; Univ. of Md., 1914; U.N.C	1914	1915
Black, O. R., Landis; N. C. Med. Coll., 1914	1914	1918
Boger, D. T.		

Name and Address	Licensed	Joined State Society
Brawley, M. H., Salisbury; N. C. Med. Coll., 1910	1912	1914
Brown, Clarence E., Salisbury; N. C. Med. Coll., 1918	1920	1921
Brown, G. A., Mt. Ulla, (Hon.); Univ. Coll. of Med., 1897	1897	1898
Clement, Edward B., Salisbury; Jeff. Med. Coll., 1906; U.N.C.	1906	1913
Eagle, J. C., Spencer; Jeff. Med. Coll., 1923	1923	1925
Ellis, Frank A., Salisbury; Univ. of Pa., 1918	1919	1919
Flemming, Giles M., Cleveland; Emory Univ., 1919	1919	1921
Frazier, J. W., Salisbury; Jeff. Med. Coll., 1924	1924	1927
Glover, F. O., Salisbury; Univ. of Pa., 1928	1931	1932
Lowery, J. R., Salisbury; Univ. of Md., 1904; U.N.C.	1904	1913
McCutchan, Frank, Salisbury; Univ. of Va., 1920	1927	1928
Marsh, Frank B., Salisbury; Jeff. Med. Coll., 1919; U.N.C.	1919	1922
Monk, Henry L., Salisbury, (Hon.); Med. Coll. of Va., 1899; U.N.C.	1899	1903
Newman, Harold H., Salisbury; Johns Hopkins, 1913	1914	1916
Peeler, John H., Salisbury; Univ. Coll. of Med., Va., 1899	1899	1904
Ramsey, Jas. G., Salisbury; Univ. of Penna., 1922; U.N.C.	1924	1924
Robertson, L. H., Salisbury; Univ. of Penna., 1929; U.N.C.	1929	1931
Seay, T. W., East Spencer; Univ. of Md., 1921	1922	1924
Shafer, Irving E., Salisbury; N. C. Med. Coll., 1914	1914	1914
Sigman, Frederick G., Spencer; Univ. Med. Coll. of Va., 1909	1909	1910
Slate, Wesley C., Spencer; Univ. of Tenn., 1903	1903	1913
Spencer, Frederick B., Salisbury; Univ. of N. C., 1909	1909	1911
Stokes, Jas. Ernest, Salisbury, (Hon.); Univ. of Md., 1892	1900	1901
Summerell, E. M., China Grove, (Hon.); Univ. of Pa., 1883	1883	1883
Tatum, Walter Lowe, Salisbury; Jeff. Med. Coll., 1922	1922	1924
West, Robert M., Salisbury, (Hon.); Med. Coll. of Va., 1900	1900	1904
Whicker, Guy E., China Grove	.....	.....
Whitehead, Edward, Salisbury; U.N.C.	.....	1928
Whitfield, Wm. Cobb, Salisbury, (Hon.); Univ. of Md., 1884; U.N.C.	1884	1884
Woodson, Charles W., Salisbury; Columbia Univ., P. and S., 1904	1905	1907

RUTHERFORD COUNTY SOCIETY

President: Robt. Rogers King, Ellenboro; Med. Dept. Univ. of Ark.	1931	1932
Secretary: C. F. Glenn, Rutherfordton; Univ. of Louisville	1927	1928
Biggs, Montgomery H., Rutherfordton; Univ. of Penna., 1897	1907	1908
Bostic, Wm. C., Forest City; Chattanooga Med. Coll., 1899; N. C. Med. Coll., 1905	1905	1905
Bostic, W. C., Jr., Forest City; Univ. of Pa., 1926	1926	1927
Crawford, Robt. H., Rutherfordton; Johns Hopkins, 1914	1920	1921
Eaves, Rupert S., Rutherfordton; Med. Coll. Va., 1932	1932	1933
Gold, Charles F., Rutherfordton; Univ. of N. C., 1910	1910	1911
Harrill, L. B., Caroleen, (Hon.); Chattanooga Med. Coll., 1897	1902	1904
Head, W. T., Campobello, R. 4, S. C.; Atlanta Coll. P. and S., 1911	1911	1923
Hunt, J. F., Spindale; Univ. of Tenn., 1900	1900	1912
Knight, H. W., Bostic; Baltimore Med. Coll., 1903	.....	1934
Logan, F. W. H., Rutherfordton; N. C. Med. Coll., 1916	1916	1919
Lovelace, Thos. C., Henrietta; N. C. Med. Coll., 1917	1920	1920
Moss, G. O., Cliffside, Emory Univ., 1927	1927	1929
Norris, Henry, Waverly Mills, S. C.; Univ. of Pa., 1897	1907	1908
Reid, George P., Forest City, (Hon.); Univ. Coll. of Med., Va., 1895	1894	1899
Rucker, Adin Adam, Rutherfordton; Univ. of Md., 1908	1908	1909
Verner, Carl Hugh, Forest City; P. and S., Atlanta, 1912	1923	1927
Wiseman, P. H., Avondale; Med. Coll. of Va., 1925	1925	1926

SAMPSON COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: Victor R. Small, Clinton; Ohio State Univ. Med. Coll., 1916	1920	1921
Secretary: O. L. Parker, Clinton; Med. Coll. of Va., 1918	1918	1919
Brewer, J. Street, Roseboro; Jeff. Med. Coll., 1919	1919	1921
Crumpler, Paul, Clinton; Univ. of Tenn., 1907	1907	1908
Kerr, John D., Clinton; Univ. of Md., 1908; U.N.C	1908	1910
Lee, J. Marshall, Newton Grove; Med. Coll. of Va., 1916	1920	1923
Matthews, James O., Clinton, R.F.D., (Hon.); Univ. Coll. of Med., Va., 1897	1897	1902
Royal, D. M., Salemburg; Med. Coll. of Va	1926	1928
Sessoms, E. T., Roseboro; N. C. Med. Coll., 1915	1915	1917
Sikes, Gibson L., Salemburg, (Hon.); Univ. Coll. of Med., Va., 1900; U.N.C	1900	1902
Sloan, Wm. H., Garland; Univ. of Md., 1916; U.N.C	1916	1920
Underwood, O. E., Roseboro; Univ. of Va., 1909	1909	1910
Wilson, Robert B., Newton Grove, (Hon.); Ky. School of Med., 1889	1889	1904
Wilson, S. Glenn, Clinton; Med. Coll. of Va., 1930; U.N.C	1930	1932

SCOTLAND COUNTY SOCIETY

President: Albert W. James, Laurinburg; Jeff. Med. Coll., 1918	1918	1921
Secretary: Marcus B. Wilkes, Laurel Hill; N. C. Med. Coll., 1912	1923	1923
Buchanan, L. T., Laurinburg; Jeff. Med. Coll., 1913	1913	1917
Erwin, Evan A., Laurinburg; Med. Coll. of S. C., 1912	1912	1913
Gibson, John S., Gibson; Univ. of Md., 1905; U.N.C	1905	1907
James, F. P., Laurinburg; Univ. of Pa., 1916; U.N.C	1916	1917
John, Peter, Laurinburg, (Hon.); Univ. of Md., 1897; U.N.C	1897	1904
Livingston, Everett Alex, Gibson; Univ. of Md., 1912	1912	1913
Pate, James G., Gibson; Univ. of Pa., 1916; U.N.C	1916	1917
Shaw, W. G., Wagram, (Hon.); P. and S., Balt., 1892	1895	1904
Wilcox, J. W., Schenectady, N. Y.; Univ. of N. C., 1906	1906	1906

STANLY COUNTY SOCIETY

President:	.....	.....
Secretary: J. S. Gaskin, Albemarle; Med. Coll. of S. C., 1925	1929	1931
Allen, Jos. A., New London, (Hon.); Univ. Coll. of Med., Va., 1901	1901	1904
Bigler, V. L., Albemarle; Univ. Pittsburg, 1925	1926	1927
Brunson, E. P., Albemarle; Jeff. Med. Coll., 1921	1922	1934
Campbell, Jas. I., Norwood; N. C. Med. Coll	1898	1898
Dickson, M. S., Oakboro; Med. Coll. of S. C., 1927	1927	1929
Dunlap, Lucius Victor, Albemarle; Univ. of N. C., 1909	1909	1910
Gaskin, Lewis R., Albemarle; Med. Coll. of S. C., 1921	1924	1926
Gaskin, Madge B., Albemarle; Med. Coll. S. C., 1926	1933	1934
Hathcock, Thomas A., Norwood, (Hon.); Univ. of Md., 1893; U.N.C.	1893	1904
Hill, Wm. Isaac, Albemarle, (Hon.); Univ. of Med., and P. and S., Balt., 1897	1897	1904
Laton, James F., Albemarle; N. C. Med .Coll., 1904	1904	1910
Lentz, C. M., Albemarle; N. C. Med. Coll., 1909	1909	1910
Moore, D. Bain, Badin; Univ. Coll. of Med., Va., 1913	1913	1915
Outlaw, J. K., Albemarle; Syracuse Univ., 1923	1926	1934
Shaver, W. T., Albemarle; Univ. of Md., 1918	1920	1921
Tally, B. T., Albemarle; Jeff. Med. Coll., 1921	1921	1922

STOKES COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President:	.....	.....
Secretary:	.....	.....
Helsabeck, C. J., Walnut Cove; Univ. of Md., 1919	1919	1922

SURRY-YADKIN COUNTIES SOCIETY

President: Jas. T. Smith, Westfield; N. C. Med. Coll., 1898	1899	1918
Secretary: Harry L. Johnson, Elkin; Univ. of Cinn., 1924; U.N.C.	1924	1927
Ashby, E. C., Mt. Airy; Univ. of Penna., 1914	1914	1916
Baird, C. A., Mt. Airy; N. C. Med. Coll., 1904	1904	1912
Britt, T C., Mt. Airy; Jeff. Med. Coll., 1921	1921	1925
Ennett, N T., Mount Airy	.....	1934
Finney, J. R., Boonville; N. C. Med. Coll., 1910	1910	1911
Flippin, J. M., Pilot Mountain, (Hon.); Coll. P. and S., Md., 1884	1893*	1926
Flippin, Samuel T., Siloam, (Hon.); N. C. Med. Coll., 1898	1898	1898
Folger, P. B., Dobson; Jeff. Med. Coll., 1922; U.N.C.	1922	1924
Gambill, I. S., Elkin; N. C. Med. Coll, 1912	1912	1917
Leak, Wharton, G., East Bend; N. C. Med. Coll., 1900	1899	1904
Lovill, Robert Jones, Mt. Airy; Univ. of Md., 1910; U.N.C.	1910	1912
Mackie, N. W., Yadkinville; Washington Univ., 1928	1928	1929
Martin, Moir S., Mt. Airy; Univ. Coll. of Med., Va., 1905	1909	1916
Mitchell, R. C., Mt. Airy; Univ. of Pa., 1919; U.N.C.	1921	1923
Parks, Hugh, Elkin; Jeff. Med. Coll., 1921; U.N.C.	1921	1928
Royal, M. A., Elkin, (Hon.); P. and S, Balt., 1885	1889*	1913
Salmons, H. C., Elkin; N. C. Med. Coll., 1904	1904	1908
Shore, T. W., Boonville	.....	1904
Smith, R. E., Mt. Airy; Univ. of Pa., 1923; U.N.C.	1923	1926
Stone, Wesley M., Dobson; N. C. Med. Coll., 1906	1906	1907
Weaver, H. J., Hamptonville; Jeff. Med. Coll., 1925	1925	1930
Wellborn, William R., Elkin; N. C. Med. Coll., 1905	1908	1913
Woltz, John L., Mt. Airy; Sou. Med. Coll., 1897	1902	1904

SWAIN COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Bennett, A. McD., Bryson City	.....	1934
Bennett, P. R., Bryson City	.....	1934
Wieters, John C., Bryson City, 1912	1933	1934

TRANSLYVANIA COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Newland, Chas. L., Brevard; Med. Coll. of Va., 1927	1928	1932
Osborne, Jos. E., Rosman; Med. Coll. of Va., 1930	1930	1930

UNION COUNTY SOCIETY

President: C. L. Guyton, Monroe; Med. Coll. of S. C., 1926	.....	1933
Secretary: C. A. Bolt, Marshville; Med. Coll. of S. C., 1926	1929	1929
Blair, M P, Marshville; Med Coll. of Va., 1895	1895	1895
Garren, R. H., Monroe; Univ. of Nashville, 1900	1901	1904
Goudelock, Jno. J., Monroe; Med. Coll. S. C., 1923	1924	1924

* Registered.

Name and Address	Licensed	Joined State Society
Love, William M., Monroe; N. C. Med. Coll., 1915	1915	1919
Mahoney, A. F., Monroe; Univ. Louisville, 1911	1923	1924
Ormand, J. W., Monroe; Univ. of Cinn. Coll. of Med., 1926, U.N.C.	1926	1927
Smith, G. M., Monroe; N. C. Med. Coll., 1914	1914	1919
Whims, H. C., Waxhaw; Univ. of Md., 1931	1931	1933

VANCE COUNTY SOCIETY

President: A. P. Newcombe, Henderson; Jeff. Med. Coll., 1922; U.N.C.	1922	1924
Secretary: J. H. Wheeler, Henderson; Jeff. Med. Coll., 1918; U.N.C.	1918	1920
Bass, H. H., Henderson, (Hon.); Univ. Coll. of Med., 1899	1899	1900
Bass, H. H., Jr., Henderson, Univ. of Pa.; U.N.C	1929	1930
Fenner, Edwin F., Henderson; Univ. of Md., 1905; U.N.C	1906	1908
Newell, H. A., Henderson; P. and S., Balt., 1906	1906	1906
Royster, Thomas S., Henderson; Univ. of Pa., 1916; U.N.C	1916	1924
Sisk, C. N., Waynesville; Univ. of Nash., 1905	1922	1923
Upchurch, Robert T., Henderson; Jeff. Med. Coll., 1908	1908	1910

WAKE COUNTY SOCIETY

President: Wm. B. Dewar, Raleigh, Univ. of Pa., 1920; U.N.C	1920	1923
Secretary: C. R. Bugg, Raleigh; Johns Hopkins Med. Sch., 1922	1924	1925
Abernethy, Claude O., Raleigh; Univ. of N. C., 1906	1906	1907
Ashby, J. W., Raleigh; Univ. of Md., 1905	1921	1922
Barbee, G. S., Zebulon; Univ. of N. C., 1910	1910	1912
Bell, Carl W., Raleigh; Coll. of P. and S., Balt., 1914	1915	1916
Buffaloe, J. S., Garner, (Hon.); Balt. Med. Coll., 1900	1900	1904
Bulla, A. C., Raleigh; N. C. Med. Coll., 1915	1915	1918
Burt, B W., Holly Springs, (Hon.); P. and S., Balt., 1886	1886	1904
Byrd, W. C,, Angier; Jeff. Med. Coll., 1923	1923	1924
Campbell, Alton C., Raleigh; Univ. of N. C., 1910	1910	1912
Carpenter, Coy C., Wake Forest; Syracuse Univ., 1924	1924	1927
Carroll, E. D. Dixon, Raleigh, (Hon.); Women's Med. Coll., N. Y., 1895	1900	1900
Caviness, V. S., Raleigh; Jeff. Med. Coll., 1921; U.N.C	1921	1925
Caviness, Zebulon M., Raleigh, (Hon.); Univ. of N. C., 1903	1903	1903
Cheek, C. E., Fuquay Springs; Univ. Coll. of Med., Va., 1912	1912	1914
Combs, Jos. J., Raleigh; Columbia Univ. of C. and P., 1926	1926	1929
Cooper, G. M., Raleigh; Univ. Coll. of Med., Richmond, 1905	1905	1906
Cozart, W. S.. Fuquay Springs; Med. Coll. of Va., Rich., 1914	1914	1917
Edwards, C. J., Raleigh; Med. Coll. of Va., 1917	1921	1923
Eldridge, Chas. P., Raleigh; Univ. of Pa., 1926; U.N.C	1926	1927
Finch, O. E., Raleigh; Jeff. Med. Coll., 1915; U.N.C	1915	1917
Flowers, C. E., Zebulon; Med. Coll. of Va., 1913; U.N.C	1915	1916
Flowers, Clarence A., Wendell; P. and S., Balt., 1905	1907	1910
Fox, P. G., Raleigh; Med. Coll. of Va., 1922	1923	1929
Freeman, R. H., Raleigh; Jeff. Med. Coll., 1908	1908	1919
Gibson, M. R., Raleigh; Univ. of Md., 1905; U.N.C	1905	1914
Goodwin, A. W., Raleigh, (Hon.); Bellevue Hosp. Med. Coll., 1887	1887	1887
Goodwin, O. S., Apex; Jeff. Med. Coll., 1923; U.N.C	1923	1926
Greene, Phares Yates, Raleigh; Northwestern Univ., 1933	1932	1934
Hall, W. D., Raleigh	.....	1934
Hamilton, John H., Raleigh; Med. Sch. of Harvard, 1916	1926	1926
Haywood, Hubert B., Jr., Raleigh; Univ. of Pa., 1909	1909	1910
Herring, E. H., Raleigh; Univ. of Pa,. 1930	1930	1934

Name and Address	Licensed	Joined State Society
Hicks, V. M., Raleigh; Jeff. Med. Coll., 1918; U.N.C.	1918	1921
Hill, M. D., Raleigh; Med. Coll. of Va., 1928	1928	1931
Horton, M. C., Raleigh; Univ. Coll. of Med., Va., 1903	1911	1911
Horton, W. C., Raleigh, (Hon.); P. and S., Balt., 1897	1896	1904
Hunter, J. P., Cary; Jeff. Med. Coll., 1919	1919	1921
Jones, Carey C., Apex; Jeff. Med. Coll., 1920	1920	1923
Judd, Eugene C., Raleigh; Univ. of Pa., 1911; U.N.C.	1911	1912
Judd, James M., Varina, (Hon.); Balt. Med. Coll., 1897	1897	1901
King, E. S., Wake Forest; Jeff. Med. Coll., 1927	1927	1930
Knox, Augustus W., Raleigh, (Hon.); Bellevue Hosp. Med. Coll., 1874	1878	1880
Knox, J. C., Raleigh; Univ. of Md., 1924	1924	1932
Lamm, Isaac W., Raleigh, (Hon.); Univ. Coll. of Med., Va., 1899	1899	1900
Lane, Bessie, Raleigh; Women's Med. Coll. of Pa., 1921	1921	1926
Lawrence, B. J., Raleigh; Jeff. Med. Coll., 1918; U.N.C.	1918	1920
Liles, L. C., Raleigh; Med. Coll. of Va., 1930; U.N.C.	1930	1933
Lowery, E. F., Raleigh; Univ. of Louisville, 1917	.....	1934
McDowell, F. C., Zebulon; Univ. of Pa., 1902	1913	1916
McGee, James Wm., Raleigh, (Hon.); Bellevue Hosp. Med. Coll., 1888	1888	1888
McKee, John S., Raleigh; Univ. of Md., 1907	1908	1909
McLeod, N. H., Raleigh; Univ. of Pa., 1930; U.N.C.	1930	1932
Mackie, Geo. C., Wake Forest; Univ. of Pa., 1928	1928	1932
Milam, D. F., Raleigh; Rush Med. Coll., 1923	1923	1933
Mitchener, J. S., Raleigh; Johns Hopkins Univ., 1915	1915	1918
Neal, Kemp P., Raleigh; Harvard, 1917	1920	1921
Neal, Paul N., Raleigh; Harvard, 1919	1920	1921
Noble, R. P., Raleigh; Univ. of N. C., 1907	1907	1916
Oliver, A. S., Raleigh; Jeff. Med. Coll., 1914; U.N.C.	1914	1919
Owen, J. F., Dix Hill, Raleigh; Jeff. Med. Coll.	1920	1927
Parrott, Jas. M., Raleigh, (Hon.); Tulane Univ., 1895	1895	1896
Powers, J. B., Wake Forest; Columbia, 1907	1907	1911
Proctor, I. M., Raleigh; Univ. of N. C., 1913; Univ. of Pa., 1915	1915	1917
Rand, E. G., Raleigh; Univ. of Pa., 1926	1926	1929
Ray, O. L., Raleigh, (Hon.); Univ. Coll. of Med., Richmond, 1899	1899	1904
Rogers, Jas. Rufus, Raleigh, (Hon.); P. and S., Balt., 1886	1886	1904
Root, Aldert S., Raleigh; Univ. of Pa., 1911	1911	1913
Royster, Hubert A., Raleigh, (Hon.); Univ. of Pa., 1894	1894	1895
Smith, Sidney, Prof. Bldg., Raleigh; Tulane Univ., 1925	1925	1930
Smith, W. G., Wendell; Med. Coll. of Va	1926	1928
Stimpson, R. T., Raleigh; Univ. of Pa., 1927; U.N.C.	1927	1929
Strickland, W. M., Wendell; Med. Coll., Va., 1919	1921	1923
Thompson, Hugh A., Raleigh; Univ. of Pa., 1914	1914	1917
Turner, H. G., Raleigh; Univ. of Pa., 1906; U.N.C.	1907	1925
Vann, H. M., Wake Forest; Jeff. Med. Coll., 1917	1920	1923
Ward, W. T., Raleigh; Univ. of Md., 1925	1925	1927
Watson, John B., Raleigh; Univ. of N. C., 1908	1908	1909
Weathers, R. R., Knightdale; Richmond Med. Coll.	1926	1928
West, Louis N., Raleigh; Jeff. Med. Coll., 1912; U.N.C.	1912	1915
Wilkerson, Charles B., Raleigh; Univ. of N. C., 1906	1906	1908
Wilkins, R. B., Raleigh; N. C. Med. Coll., 1913	1913	1915
Wilkinson, C. T., Wake Forest; Tulane Univ., 1922	1922	1923
Wilkinson, R. W., Jr., Wake Forest; Tulane Univ., 1922	1923	1924
Winston, P. H., State Hospital, Raleigh; Med. School of Va., 1929; U.N.C.	1929	1930

Name and Address	Licensed	Joined State Society
Wright, J. B., Raleigh, (Hon.); Univ. Coll. of Med., Va., 1899; U.N.C.	1899	1900
Yarborough, Frank R., Cary; University of Penn., 1923; U.N.C.	1925	1926
Ziegler, M. V., Raleigh; Univ. of Md., 1915	.....	1932

WARREN COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Foster, H. H., Norlina; Jeff. Med. Coll., 1919	1919	1923
Holt, T. J., Warrenton; Med. Coll. of Va., 1904; U.N.C.	1904	1911
Hunter, Frank P., Warrenton; Univ. of Va., 1925; U.N.C.	1925	1927
Macon, G. H., Warrenton; Univ. Coll. of Med., Va., 1910; U.N.C.	1910	1911
Peete, C. H., Warrenton; Univ. of Pa, 1903	1906	1911

WATAUGA-ASHE COUNTIES SOCIETY

President:	.....	.....
Secretary:	.....	.....
Hagaman, J. B., Boone; 1915	1915	1915
Jones, D. C., Lansing; Univ. of Pa., 1927	1930	1930
Jones, T. Lester, Lansing; Va. Med. Coll., 1909; U.N.C.	1909	1917
Perry, H. B., Boone; N. C. Med. Coll., 1905	1905	1922
Tugman, B. W., West Jefferson	1914	1917

WAYNE COUNTY SOCIETY

President: M. E. Bizzell, Goldsboro; Tulane Univ., 1923; U.N.C.	1923	1925
Secretary: C. E. Howard, Goldsboro; Univ. of Pa., 1925; U.N.C.	1925	1927
Best, D. E., Goldsboro; Univ. of Md., 1924	1924	1926
Cobb, Donnell B., Goldsboro; Univ. of Pa., 1921; U.N.C.	1921	1926
Cobb, W. H., Jr., Goldsboro, (Hon.); Jeff. Med. Coll., 1889	1889	1890
Crawford, W. J., Goldsboro; Med. Coll. of Va., 1922	1922	1923
Dale, G. C., Goldsboro; Univ. of Pa., 1925; U.N.C.	1925	1927
Harrell, L. J., Goldsboro; Univ. of Md., 1930	1930	1934
Henderson, C. C., Mt. Olive; Univ. of Md., 1914; U.N.C.	1914	1919
Hollingsworth, E T., Goldsboro; N. C. Med. Coll., 1912	1912	1915
Irwin, Henderson, Eureka; Univ. of Md., 1912	1914	1916
Ivey, H. B., Goldsboro; Univ. Coll. of Med., Richmond, 1911	1911	1917
Jones, Clara E., Goldsboro, (Hon.); Women's Med. Coll. of Pa., 1894	1894	1897
Linville, W. C., Goldsboro; Univ. of Md., 1903; U.N.C.	1903	1923
McCuiston, A. M., Mount Olive; N. C. Med. Coll., 1911	1911	1917
Miller, Robert B., Goldsboro, (Hon.); Med. Coll. of Va., 1898; U.N.C.	1900	1902
Person, Edgar Cooper, Pikeville; Med. Coll. of Va., 1905	1905	1908
Reeves, G. F., Goldsboro; Med. YSC, 1925	.....	1930
Rose, David J., Goldsboro; Tulane Univ., 1922; U.N.C.	1922	1925
Rose, James, Pikesville	.....	1931
Smith, Wm. H., Goldsboro; Univ. of Pa., 1906; U.N.C.	1907	1912
Strosnider, Charles F., Goldsboro; Univ. of Md., 1909	1910	1913
Warrick, L. A., Goldsboro; Geo. Washington Univ., 1923	1923	1924
Whelpley, Frank L., Goldsboro; Missouri Univ., 1902	1918	1918
Wilkins, J. W., Mount Olive; Med. Coll. of Va., 1913; U.N.C.	1913	1917
Woodard, A. G., Goldsboro; Univ. of N. C., 1907	1907	1909
Zealy, A. H., Jr., Goldsboro; Harvard, 1930	1932	1934

WILKES-ALLEGHANY COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: Wm. K. Newton, North Wilkesboro; Med. Coll. of Va., 1931	1932	1933
Secretary: James H. McNeill, North Wilkesboro; Geo. Wash. Univ. Med. School, 1926	1926	1927
Eller, Albert J., Readybranch; P. and S., Balt., 1893	1895	1904
Gilreath, Frank H., N. Wilkesboro, (Hon.); Univ. of Nashville, 1898	1898	1898
Holbrook, J. Samuel, New Orleans	.....	1933
Hubbard, Fred C., North Wilkesboro; Jeff. Med. Coll., 1918; U.N.C.	1919	1921
Hutchens, E. M., North Wilkesboro; N. C. Med. Coll, 1896	1896	1904
Long, L. L., Laurel Springs; Lincoln Memorial Univ., 1916	1916	1934
Miles, Walter W., Champion; Univ. of Tenn. Med., 1931	1933	1934
Mitchell, G. T., Wilkesboro; Jeff. Med. Coll., 1927; U.N.C	1927	1928
Sink, C. S., North Wilkesboro; N. C. Med. Coll., 1912	1912	1913
Smith, Harold Benj., North Wilkesboro; Med. Coll. of S. C	1929	1930
Triplett, W. R., Purlear; N. C. Med. Coll., 1914	1915	1920

WILSON COUNTY SOCIETY

President: W. C. Hunter, Wilson; Univ. of Pa., 1928; U.N.C	1928	1931
Secretary: Ralph L. Fike, Wilson; Med. Coll. of S. C., 1932	1933	1934
Anderson, Wade H., Wilson; Univ. of Va., 1902	1904	1904
Bell, G. E., Wilson; Jeff. Med. Coll., 1921	1921	1922
Best, Henry B., Wilson; Univ. of N. C., 1907	1907	1908
Blackshear, T. J., Wilson; Emory Univ., 1914	1923	1924
Darden, D. B., Stantonsburg; Univ. of Pa., 1921; U.N.C	1924	1926
Dickinson, Elijah T., Wilson, (Hon.); Med. Coll. of Va., 1895	1895	1900
Grady, Leland V., Wilson, Rt. 2; N. C. Med. Coll., 1913	1913	1914
Hackney, Ben. H., Lucama; Tulane Univ., 1911; U.N.C	1911	1913
Lane, P. P., Wilson; Univ. of Md., 1908; U.N.C	1908	1920
McClees, E. C., Elm City; Med. Coll. of Va., 1917	1920	1920
Mitchell, G W., Wilson; Univ. Coll. of Med., Va., 1913	1913	1920
Moore, Chas. E., Wilson, (Hon.); Bellevue Hosp. Med. Coll., 1875	1875	1875
Mullen, Malcolm P., Wilson; Emory Univ. Med. School, 1927	1927	1928
Pittman, M. A., Wilson; Jeff. Med. Coll., 1921	1924	1923
Putney, R. H., Elm City; Med. Coll. of Va., 1914	1914	1920
Saliba, Michael M., Wilson; Balt. Med. Coll., 1897	1910	1910
Smith, F. G., Wilson; Univ. Go. Med. Dept., 1922	1927	1931
Smith, A. Jones, Black Creek; Univ. of Pa., 1921; U.N.C	1921	1923
Strickland, Ernest L., Wilson; Med. Coll. of Va., 1916	1916	1917
Williams, Albert F., Wilson, (Hon.); Univ. of Md., 1901; U.N.C	1901	1904
Willis, H. C., Wilson; P. & S., Memphis, 1911	1916	1924
Woodard, C. A., Wilson; Univ. of Va., 1904	1904	1920
Woodard, G. B., Wilson; Med. Coll. of Va., 1915	1915	1916

YANCEY COUNTY SOCIETY

President:	.....	.....
Secretary: W. Burdett Robertson, Burnsville; Balt. Med. Coll., 1898	1908	1908
Bennett, W. L., Bald Creek	.....	1933
Cheadle, C. M., Burnsville; Keokuk Med. Coll., 1898	1919	1921
Gibbs, J. B., Burnsville; Tenn. Med. Coll., 1900; and N. C. Med. Coll., 1904	1904	1919
McLean, I. N., Burnsville	.....	1927

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